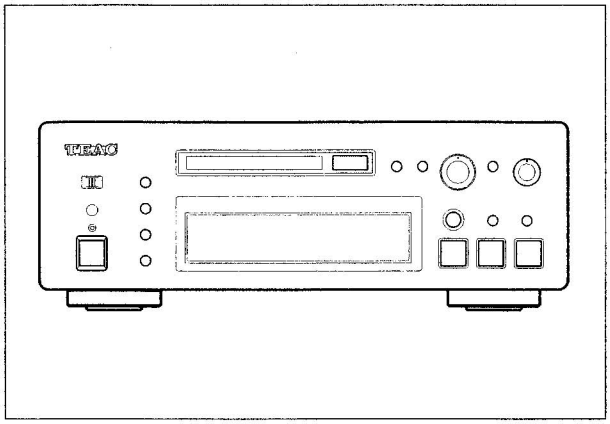

TEAC

SERVICE MANUAL

MD-H500*i*

MINIDISC DECK

NOTES

- PC boards shown are viewed from parts side.
- The parts with no reference number or parts number in the exploded views are not supplied.
- As regards the resistors and capacitors, refer to the circuit diagrams contained in this manual.
- ⚠ Parts marked with this sigh are critical components. They must be replaced with identical components - refer to the appropriate parts list and ensure exact replacement.
- Parts of [.] mark can be used only with the version designated.
  [J] : JAPAN [US] : U.S.A. [C] : CANADA
  [E] : EUROPE [UK] : U.K. [GE] : GENERAL EXPORT

9A07472900

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SPECIFICATIONS

Format :
Minidisc digital audio system
Recording system :
Magnetic field modulation overwrite system
Playback system :
Non-contact optical reading
Laser :
Semiconductor laser (λ = 780 nm)
Recording/ playback time :
74 minutes max.
Rotation speed :
Approx. 400 rpm - 900 rpm (CLV)
Sampling frequency :
44.1 kHz
Number of channels :
2 (stereo)
Frequency response :
10 Hz - 20 kHz $\pm$ 0.5 dB
Signal-to-noise ratio :
92 dB or more (playback)
Wow and Flutter :
Unmeasurable
Line output level :
2 Vrms

Power supply :
230 V AC, 50 Hz (Europe/General export version)
120 V AC, 60 Hz (U.S.A./Canada version)
100 V AC, 50-60 Hz (DM version)
Power Consumption : 14 W
Dimensions (W x H x D) :
285 x 101 x 301 mm
Weight (net) : 4.0 kg

Standard Accessories :
Stereo pin cord x 1
Remote code x 1
Remote Control Unit x 1

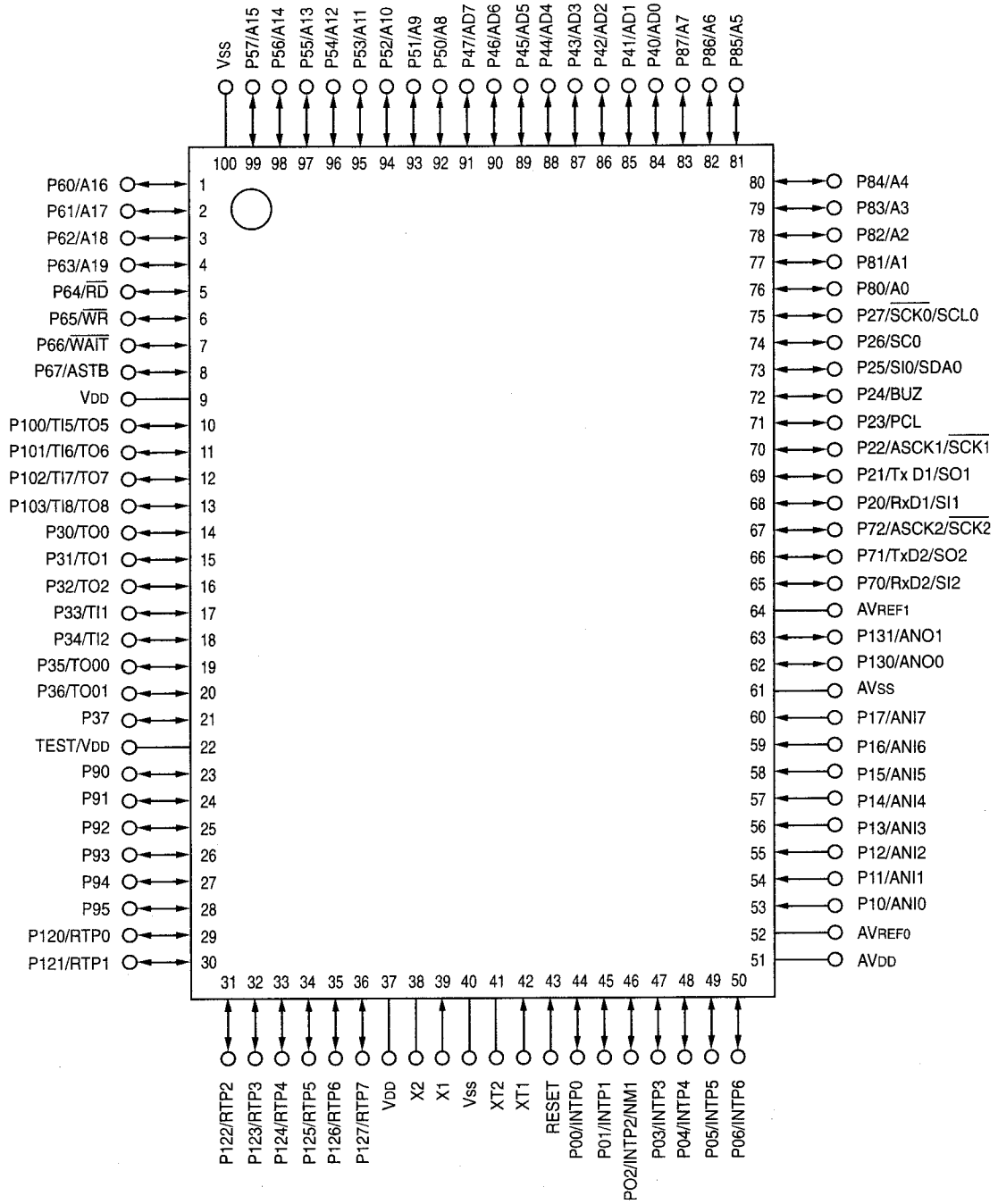
- Improvements may result in specifications or feature changes without notice.
- Phono and illustrations may differ slightly from production models.
- US and foreign patens licensed from Dolby Laboratories Licensing Corporation.

BVIANAM1258MD (u-COM:uPD78F4215GF)

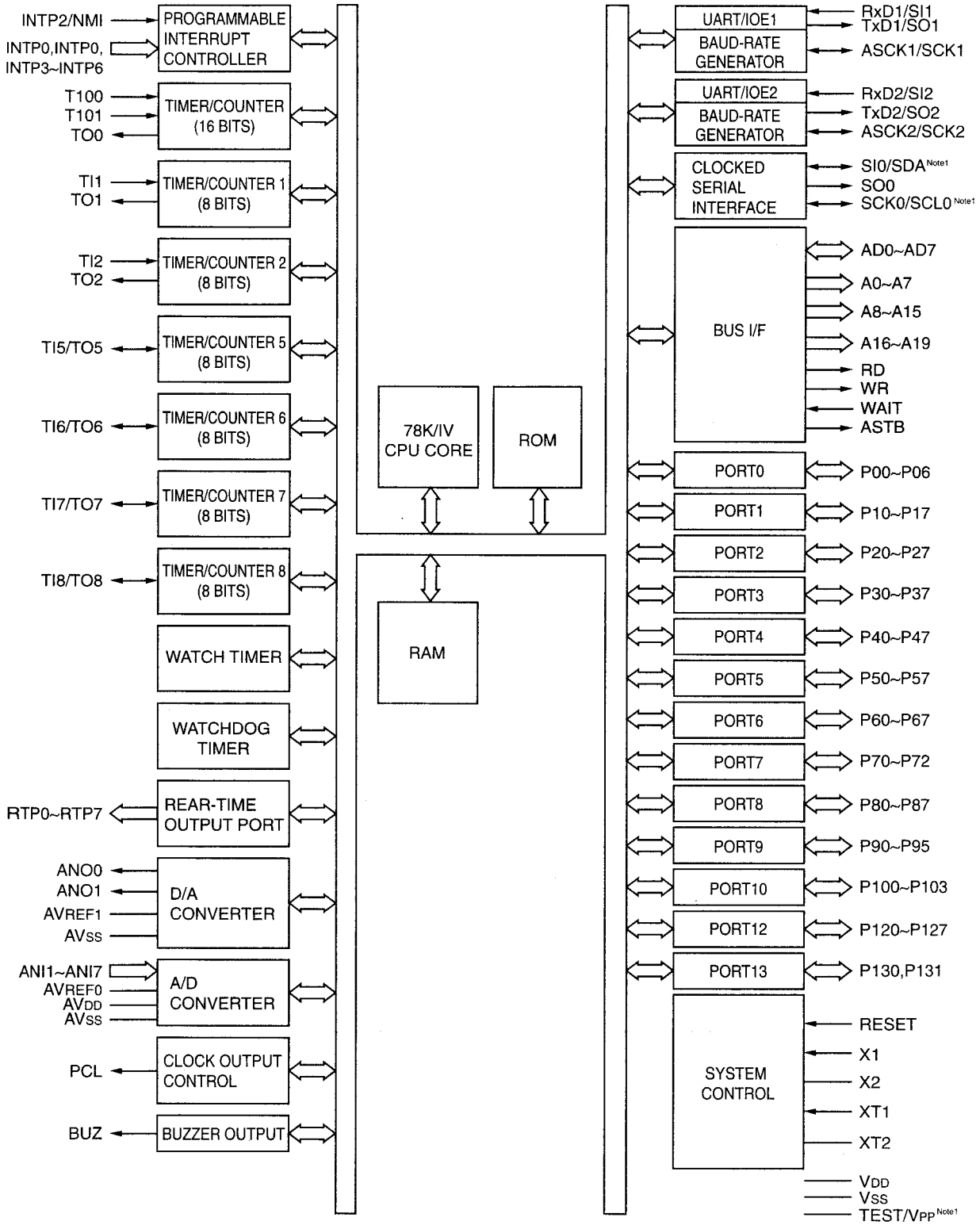
PIN No.	SYMBOL	I/O	DESCRIPTION
1~2	A16	O	No Connection
3	EXLAT	O	Output Port of Latch Signalto TC74HC4094
4	EXCK	O	Clock Output Port to TC74HC4094
5	RD	O	Sram Read
6	WR	O	Sram Write
7	CS	O	Sram Chip Select (L:Sram Enable)
8	STB	O	Output Port of Strobe Signal
9	VDD	-	u-com Power (+5V)
10	POWER	O	Power Port (H:Power On)
11	MUTE	O	Mute Control Output (L:Mute On)
12	INISW2	I	Destination Selector (L:KANA)
13	SCHNG	O	EEPROM Data In/Out Change-Over (H:SDA Output)
14	SBUSY	I/O	16Bit Serial Busy
15	SDATA	I/O	16Bit Serial Data
16	SCL	O	EEPROM Clock
17	SDA	I/O	EEPROM Data
18	LDON	O	Laser On/Off Control Port (H:LD On)
19	RMS	O	Pick RMS (H:On)
20	XLAT	O	System Ic Latch (CXD2652)
21	SENS	I	System Ic Sense (CXD2652)
22	TEST	-	GND
23	PROTECT	I	Detection Port of protect Switch (L:Protect On)
24	REFLECT	I	Detection Port of Reflect Switch (H:Low Reflect)
25	DISCIN	I	Detection of Disc In Switch (L:Disc Out S/W On)
26	STTLMT	I	Detection Port of Limit Switch L:Start Limit S/W On)
27	PHOTSW	I	Mecha play position sensor (L:Photo Sensor On)
28	RECSW	I	Mecha Rec Switch (L:Rec S/W On)
29	LOADIN	O	Loading Motor In (L:Loading Out)
30	LOADOUT	O	Loading Motor Out (L:Loading In)
31	MNT0	I	Fok Sinal from CXD2652AR (L:Focus On)
32	MNT2	I	Input Port of Monitor 2 from CXD2652AR
33	XRST	O	Output Port of Reset Signal to CXD2652AR
34	TX	O	Output port of recording permitted signal
35	RECP	O	Laser power control to CXD2652AR
36	MNT3	I	Input Port of Monitor 3 From CXD2652AR
37	VDD	O	u-com Power (+5V)
38~39	X2OUT	O	Clock in/out 12.5MHz
40	GND	-	GND
41	XT2	O	Not Use (Open)
42	XT1	I	GND
43	RESET	I	u-com hard reset (L:Reset)
44	REM	I	Remocon Signal input terminal
45	XINT	I	Input port of interruoted status from CXD2652AR
46	CE	I	u-COM Chip Enable (H:Enable)
47	SQSY	I	Input port of sub code Q from CXD2652AR
48	DQSY	I	U-bit of digital IN/SUB Q sync input of CD format

PIN No.	SYMBOL	I/O	DESCRIPTION
49	DDQSY	I	U-bit of digital IN/SUB Q sync input
50	MNT1	I	Input port of track jump detection from CXD2652AR
51	AVDD	-	u-COM Power
52	AVREF0	-	A/D Reference Voltage
53~56	KR0~3	I	Key Input(0 ~ 3)
57	TMSW	I	Timer Switch inp[ut
58	INISW	I	Detection selector
59	BACKV	I	Back up Voltage Detection
60	ENCB	I	Encoder Input - B
61	Avss	-	-
62	BACKON	O	Back Charge control
63	ENCA	I	Encoder Input - A
64	AVref1	-	D/A Reference Voltage
65	SRDT	I	Data for reading input from CXD2652AR
66	SWDT	O	Data for writing to CXD2652AR
67	SCLK	O	Serial Clock to CXD2652AR
68	CRXD	I	Not Use
69	CTXD	O	Not Use
70	CENA	I	Not Use
71	EXDT	O	Data output to 74Hc4094
72	FLDCE	O	Chip Enable to FLT Driver
73	DRDT	I	Pull down
74	DWDT	O	FLT Driver Data
75	DCLK	O	FLT Driver Clock
76	DLAT	O	Not use (Open)
77	DEMPH	I	Pull down
78	DSUB1	I	Pull down
79	DSUB2	I	Pull down
80	SRCLAT	O	Pull down
81	BACKCHK	O	Backup Voltage Check
82	VCLK	O	Not use (Open)
83	VLDT	O	Not use (Open)
84~91	AD0~7	O	Sram Address Data
92~99	A8~15	O	Sram Address
100	Vss	-	GND

PIN ASSIGNMENT



BLOCK DIAGRAM

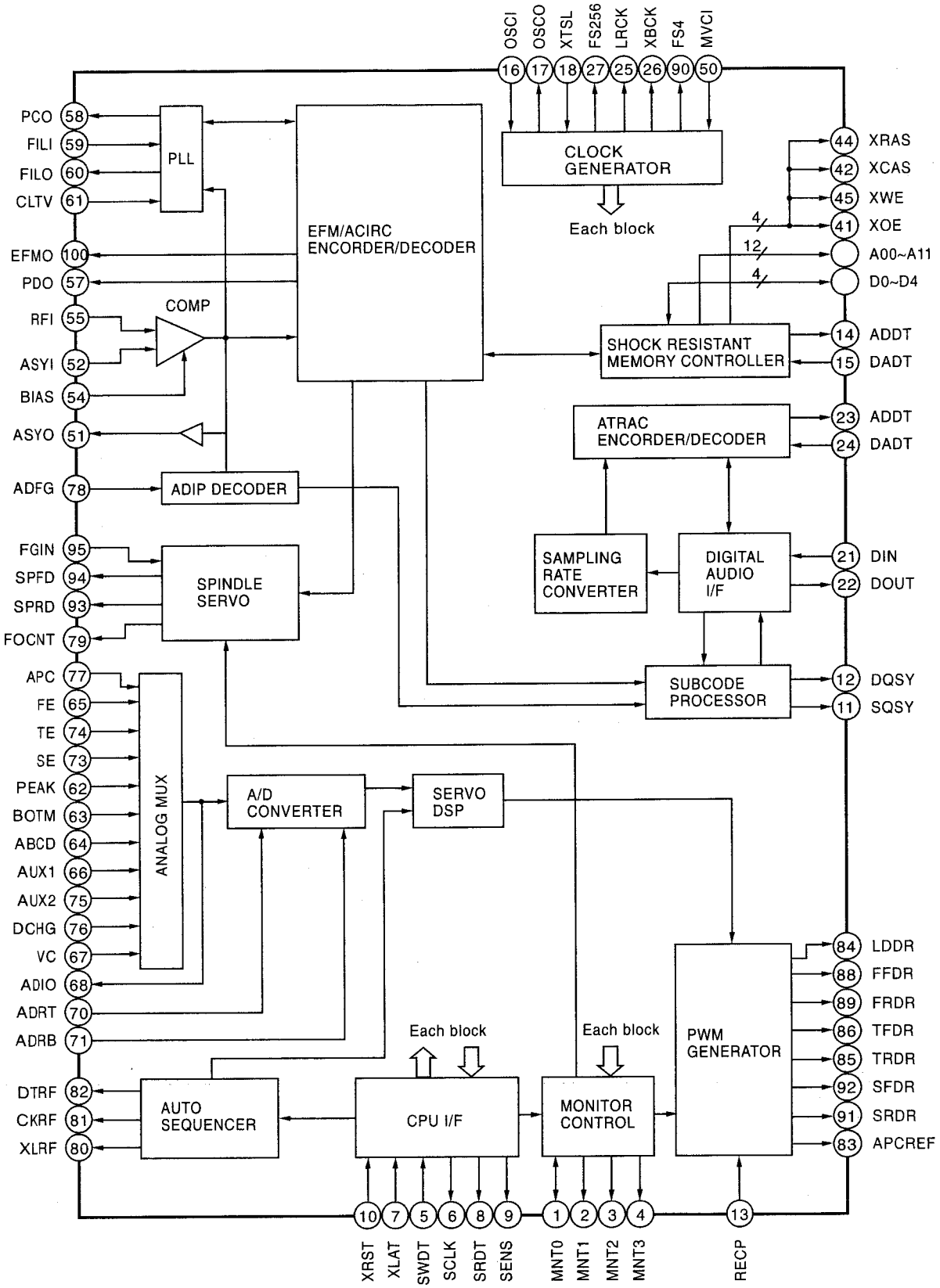


CXD2652AR (Digital Signal Processor)

PIN No.	SYMBOL	I/O	H,Z,L	DESCRIPTION
1	MNTO	I/O	H.L	Monitor Signal Interface
2~4	MNT1~4	O	H,L	Monitor Output
5	SWDT	I	-	Data In of u-com Serial Interface
6	SCLK	I	-	Shift Clock Input of u-com Serial Interface
7	XLAT	I	-	Latch Input Port of u-com Serial Interface
8	SRDT	O	H,Z,L	u-com Serial Data Output
9	SENS	O	H,Z,L	Internal Status Output
10	XRST	I	-	Reset Input "L":Reset
11	SQSY	O	H,L	Disc Sub Code Q Sync/ADIP Sync Output
12	DQSY	O	H,L	Sub Code Q Sync Output
13	RECP	I	-	Laser Power Select Input "H": Recording Power
14	XINT	O	H,L	Interupt Call Output
15	TX	I	-	Rec Data Enable "H":Enable
16~17	OSC I/O	I	-	Clock In/Out
18	XTSL	I	-	Frequency Select "H": 512fs
19	NC	-	-	No Connection
20	DVss	-	-	Digital GND
21	DIN	I	-	Digital Audio Interface Signal input
22	DOUT	O	H,L	Digital Audio Interface Signal Output
23	ADDT	I	-	Analog Rec Input
24	DADT	O	H,L	Rec Monitor Input
25	LRCK	O	H,L	LRCK(44.1kHz) Output
26	XBCK	O	H,L	Bit Clock (2.8224MHz)Output
27	FS256	O	H,L	256fs Output(11.2896MHz)
28	DVdd	-	-	Digital Power
29	A03~11	O	H,L	External DRAM Address Output
40	DVss	-	-	Digital GND
41	XOE	O	H,L	External DRAM Output Enable
42	XCAS	O	H,L	External CAS Output
43	A09	O	H,L	External DRAM Address Output
44	XRAS	O	H,L	External RAS Output
45	XWE	O	H,L	Write Enable Output of External DRAM
46	D1~D3	I/O	H,L	Data Bus Port of DRAM
50	MVCI	I	-	Clock Input Port of External VCO(784fs)
51	ASYO	O	H,L	Playback EFM Full Swing Output
52	ASYI	I	Analog	Comparator Slice Voltage Input
53	Avdd	-	-	Analog Power
54	BIAS	I	Analog	Comparator Vias Current Input
55	RFI	I	Analog	Playback of EFM Signal Input
56	AVss	-	-	Analog GND
57	PDO	O	H,Z,L	EFM Decoder Analog PLL Phase Comparator Output
58	PCO	O	H,Z,L	Playback Digital Master PLL Phase Comparator Output
59	FILI	I	Analog	Playback Digital Master PLL Filter Input
60	FILO	O	Analog	Playback Digital Master PLL Filter Output
61	CLTV	I	Analog	Master PLL,VCO Control Voltage Input
62	PEAK	I	Analog	Laser Peak Hold Signal Input

PIN No.	SYMBOL	I/O	H,Z,L	DESCRIPTION
63	BOTM	I	Analog	Laser Bottom Hold Signal Input
64	ABCD	I	Analog	Optical Signal Input
65	FE	I	Analog	Focus Error Signal Input
66	AUX1	I	Analog	Auxiliary Input1
67	VC	I	Analog	Center Voltage Input
68	ADIO	O	Analog	Monitor Input
69	AVdd	-	-	Analog Power
70	ADRT	I	Analog	Peak Voltage Input Port in A/D Convertor Operation
71	ADRB	I	Analog	Bottom Voltage Input Port in A/D Convertor Operation
72	AVss	-	-	Analog GND
73	SE	I	Analog	Sled Error Signal Input
74	TE	I	Analog	Tracking Error Signal Input
75	AUX2	I	Analog	Auxiliary Input2
76	DCHG	I	-	Connect to Low Impedence Power Source
77	APC	I	Analog	APC Error Signal Input
78	ADFG	I	-	ADIP2 FM Signal(22.05 ± 1 kHz)Input
79	F0CNT	O	H,L	Current source output port of CXA2523
80	XLRF	O	H,L	Latch output port of CXA2523. Latch=falling edge.
81	CKRF	O	H,L	Shift clock output port of CXA2523.
82	DTRF	O	H,L	Data output port of CXA2523.
83	APCREF	O	H,L	Reference PWM output port of laser APC.
84	LDDR	O	H,L	PWM output port for laser digital APC.
85	TRDR	O	H,L	Negative tracking servo drive PWM output port.
86	TRDR	O	H,L	Positive tracking servo drive PWM output port.
87	DCDD	_	-	Digital power supply.
88	FFDR	O	H,L	Positive focus servo drive PWM output port.
89	FRDR	O	H,L	Negative focus servo drive PWM output port.
90	FS4	O	H,L	4Rs output port(176.4kHz).
91	SRDR	O	H,L	Negative feed servo drive PWM output port.
92	SFDR	O	H,L	Positive feed servo drive PWM output port.
93	SPRD	O	H,L	Negative spindle servo drive PWM output port.
94	SPFD	O	H,L	Positive spindle servo drive PWM output port.
95	FGIN	I	-	FG input port of spindle CAV servo.
96	TEST1~3	I	-	Test Pin , Connect to GND
99	DVss	-	-	Digital GND
100	EFMO	O	H,L	R-ch zero data detection flag output port.

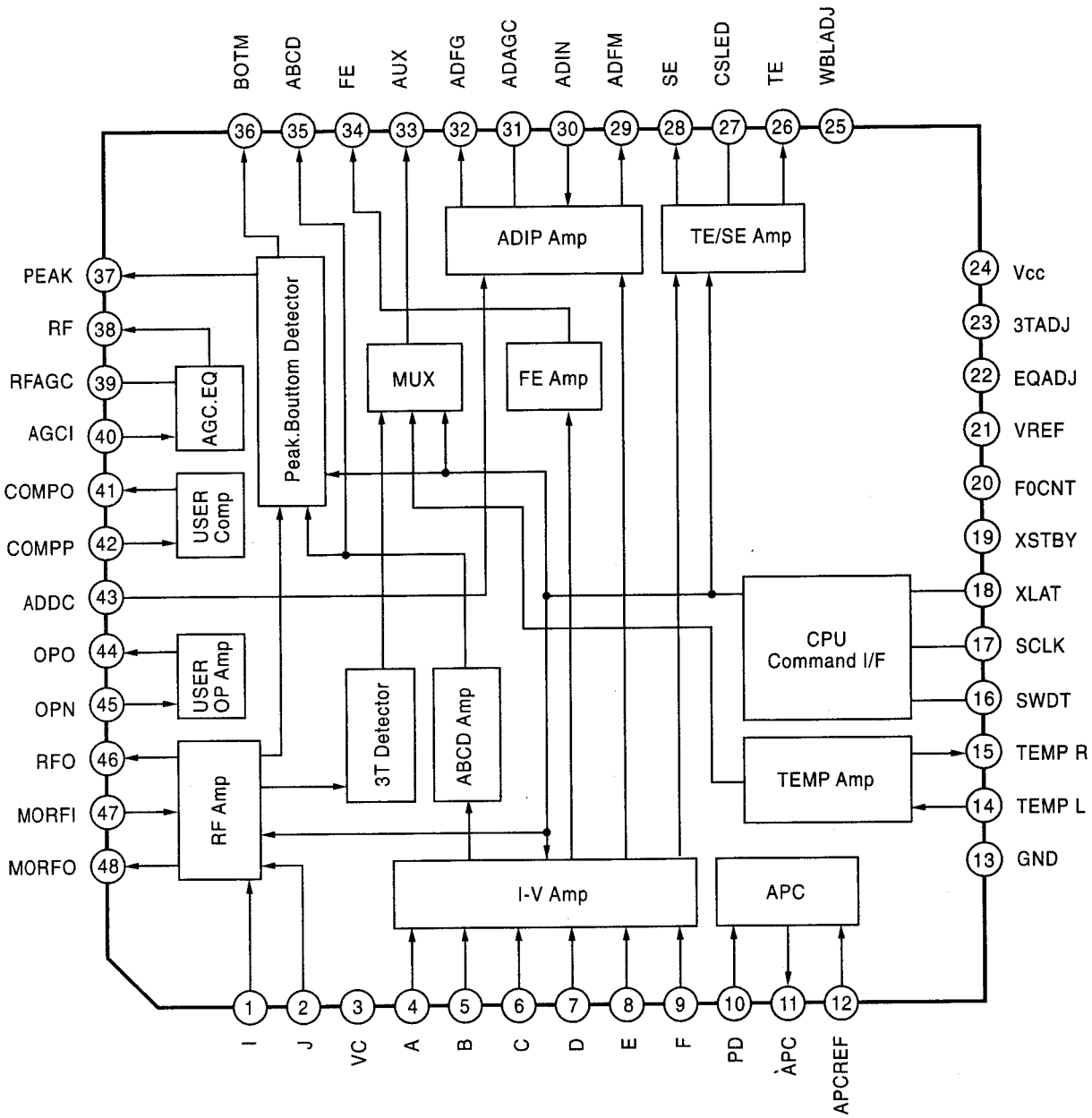
BLOCK DIAGRAM



CXA2523AR (RF AMP)

PIN No.	SYMBOL	I/O	DESCRIPTION
1	I	I	RF Signal Input
2	J	I	RF Signal Input
3	VC	I	Vcc/2 Voltage
4	A	I	Current Input Port For Servo Signal A
5	B	I	Current Input Port For Servo Signal B
6	C	I	Current Input Port For Servo Signal C
7	D	I	Current Input Port For Servo Signal D
8	E	I	Current Input Port For Servo Signal E
9	F	I	Current Input Port For Servo Signal F
10	PD	I	Monitor Input Port
11	APC	O	Laser APC Output
12	APCREF	I	Reference Input Voltage
13	GND	I	GND
14	TEMPI	I	Temp. Sensor
15	TEMPR	I	Temp. Sensor
16	SWDT	I	Serial Data Input
17	SCLK	I	Serial Data Shift Clock Input
18	XLAT	I	Serial Data Latch Input
19	XSTBY	I	Stanby ("L": Stanby)
20	F0CNT	I	Internal Current Source
21	VREF	O	Reference Output Voltage
22	EQADJ	I/O	Center Frequency Select For EQ
23	3TADJ	I/O	Center Frequency Select For BPF3T
24	VCC	-	Power
25	WBLADJ	I/O	Center Frequency Select For BPF22
26	TE	O	Tracking Error Signal Output
27	CSLED	O	Sled Error Signal Through LPF Condensor
28	SE	O	Sled Error Signal Output
29	ADFM	O	ADIP FM Signal Output
30	ADIN	I	Comparator Input For ADIP
31	ADAGC	-	ADIPAGC Condensor
32	ADFG	O	ADIP2 Signal Output
33	AUX	O	I3 Output.Temp.Signal Output
34	FE	O	Focus Error Signal Output
35	ABCD	O	Main Beam Servo Detector Signal Output
36	BOTM	O	RF/ABCD Bottom Hold Signal Output
37	PEAK	O	RF/ABCD Peak Hold Signal Output
38	RF	O	RF Eq.Output
39	RFAGC	-	RFAGC Condensor
40	AGCI	I	RFAGC Input
41	COMPO	O	User Comparator Output
42	COMPP	I	User Comparator Input
43	ADDC	I/O	ADIP Amp Feedback Condensor
44	OPO	O	User OP Amp Output
45	OPN	I	User OP Amp Input
46	RFO	O	RF Amp Output
47	MORFI	I	RF Input Signal For Groove(AC Coupling)
48	MORFO	O	RF Output Signal For Groove

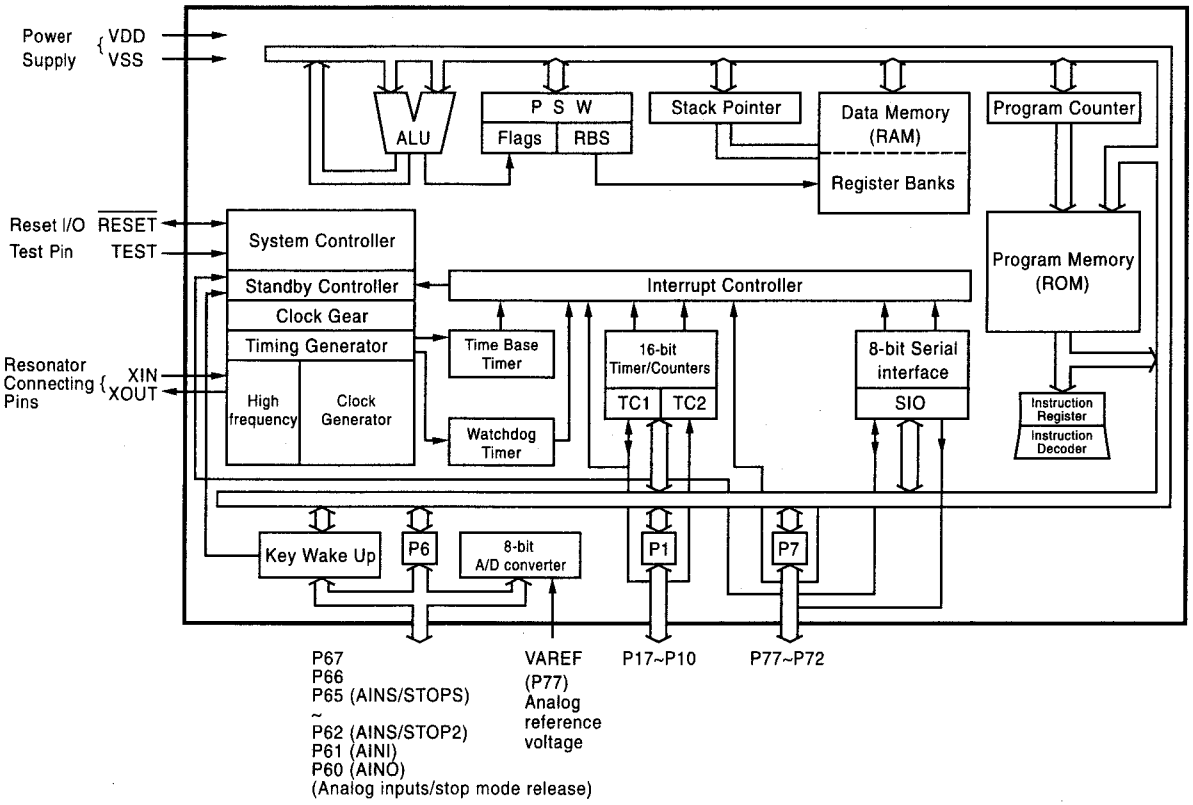
BLOCK DIAGRAM



IC71 BVIANAM1246MD(TMP87P808M)

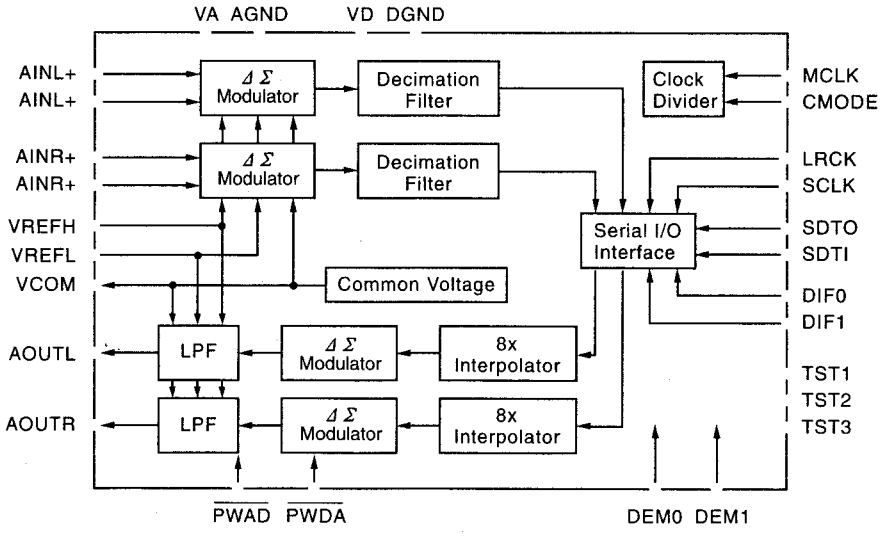
PIN No.	SYMBOL	I/O	DESCRIPTION
1	XOUT	O	Oscillator 8.0MHz
2	XIN	I	Oscillator 8.0MHz
3	TEST	I	Connect to GND
4	P67	I/O	Not Use (Open)
5	P66	I/O	Not Use (Open)
6	P65	I/O	Not Use (Open)
7	P64	I/O	Not Use (Open)
8	P63	I/O	Not Use (Open)
9	P62	I/O	Not Use (Open)
10	P61	I/O	Not Use (Open)
11	P60	I/O	Not Use (Open)
12	P77	I/O	Not Use (Open)
13	P76	I	Connect to GND
14	VSS	-	GND
15	SO	I/O	Not Use (Open)
16	SI	I/O	Not Use (Open)
17	SCK	I	Option Port (Pull Up)
18	P72	I	System,Single Select Port (H:System)
19	P17	O	Remote Signal Output
20	P16	O	Dimmer Signal Output
21	P15	O	Rec Mute Out Port
22	P14	I/O	Not Use (Open)
23	P13	O	Bus Data Out
24	P12	I	Bus Data In
25	P11	I/O	Md Data In/Out
26	P10	I/O	Md Busy In/Out
27	RESET	I	Sub u-com Reset (L:Reset)
28	VDD	-	Digital Vdd

BLOCK DIAGRAM

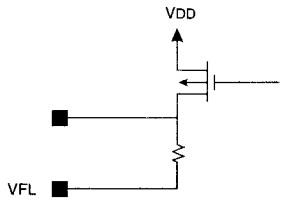
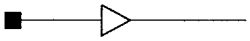
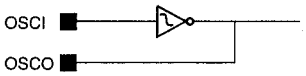
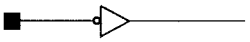


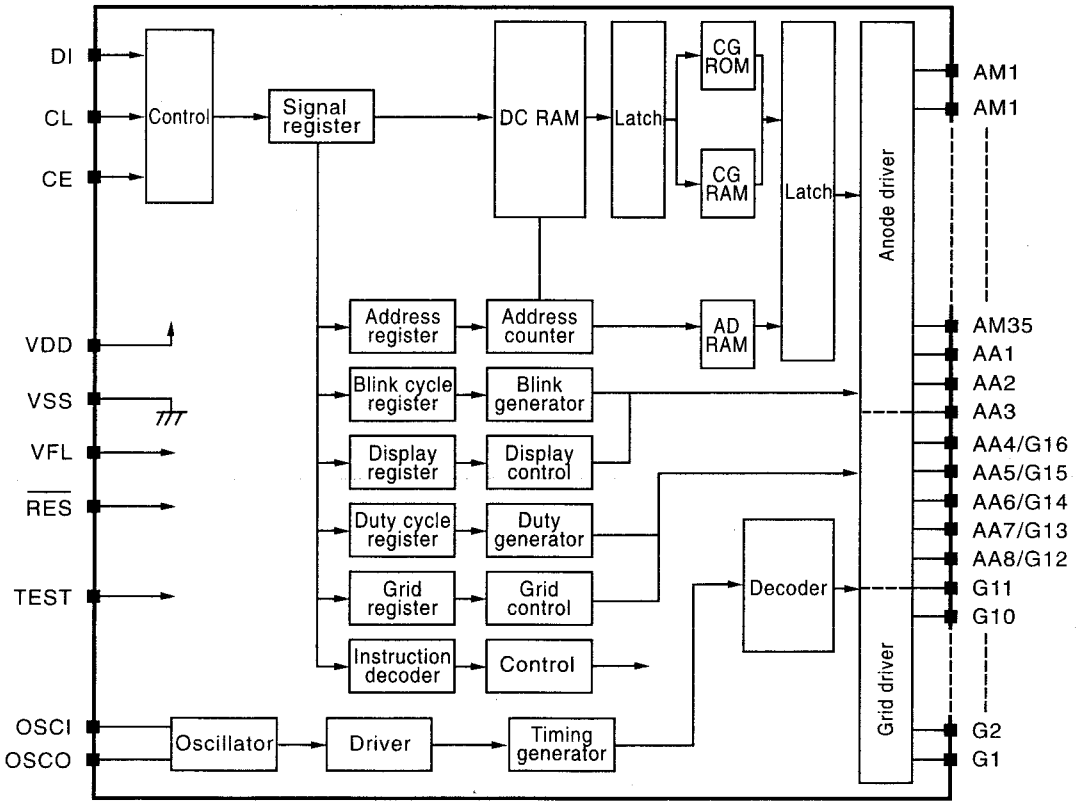
AK4520 (A/D,D/A CONVERTER)

PIN No.	SYMBOL	I/O	DESCRIPTION
1	VREFH	I	Positive Voltage Reference Input Pin,VA Used as a positive voltage reference by ADC & DAC. VREFH is connected externally to filtered VA.
2	VREFL	I	Negative Voltage Reference Input Pin,AGND Used as a negative voltage reference by ADC & DAC. VREFL is connected externally to filtered AGND.
3	AINR+	I	Rch Analog Positive Input Pin
4	AINR-	I	Rch Analog Negative Input Pin
5	AINL+	I	Lch Analog Pogitive Input Pin
6	AINL-	I	Lch Analog Nagative Input Pin
7	VA	-	Analog Power Supply Pin
8	AGND	-	Analog Ground Pin
9	DIF0	I	Audio Data Interface Format Pin
10	DIF1	I	Audio Data Interface Format Pin
11	LRCK	I	Input/Output Channel Clock Pin
12	SCLK	I	Audio Serial Data Clock Pin
13	SDTI	I	Audio Serial Data Input Pin
14	SDTO	O	Audio Serial Data Output Pin
15	MCLK	I	Master Clock Input Pin
16	DEM0	I	De-emphasis Frequency Select Pin
17	DEM1	I	De-emphasis Frequency Select Pin
18	TST3	I/O	Test Pins (Pull down pins) Must be left open or connected to DGND.
19	TST2	I/O	
20	TST1	I	
21	VD	-	Digital Power Supply Pin
22	DGND	-	Digital Ground Pin
23	$\overline{\text{PWDA}}$	I	DAC Power-Down Mode Pin
24	$\overline{\text{PWAD}}$	I	ADC Power-Down Mode Pin
25	CMODE	I	Master Clock Select Pin ("H": 384fs, "L": 256fs)
26	AOUTL	O	Lch analog output pin
27	AOUTR	O	Rch analog output pin
28	VCOM	O	Common Voltage Output Pin, VA/2



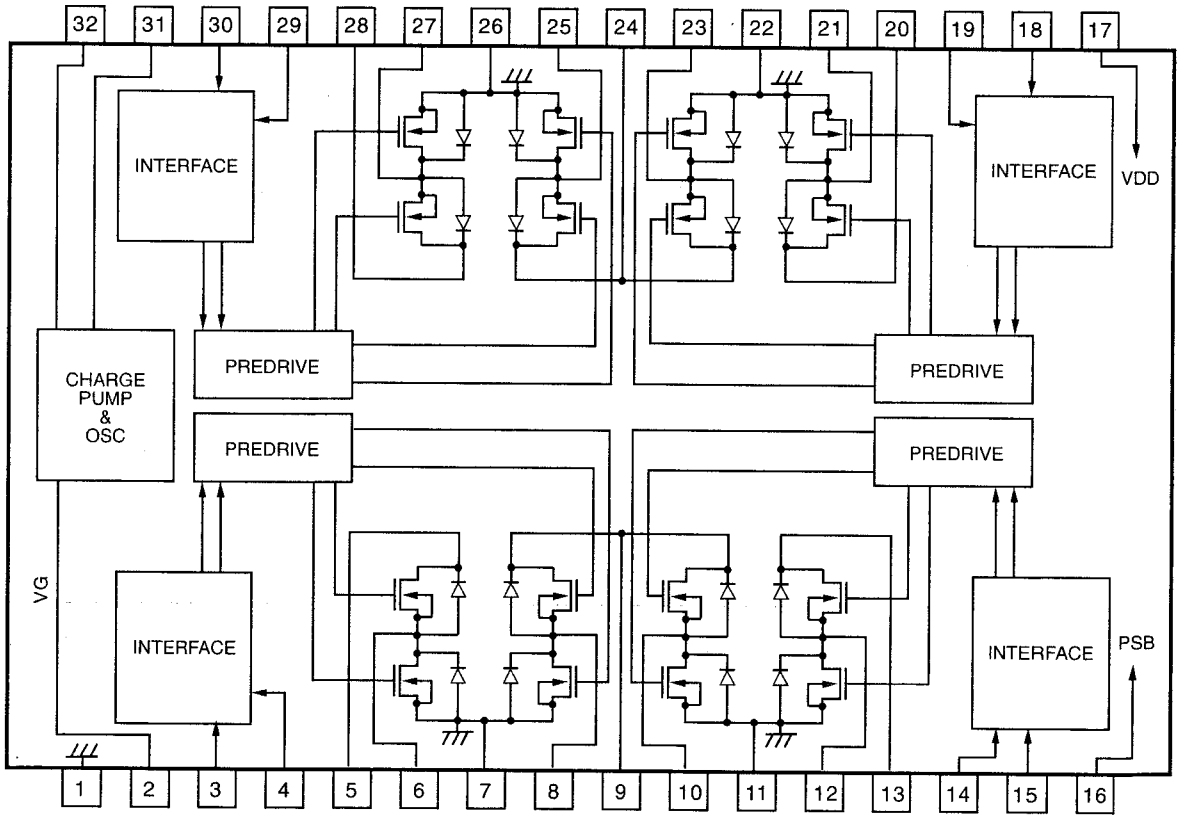
BVILC75710NE (Dot Marrix VFD Controller/Diver)

PIN No.	Name	Equivaient circuit	DESCRIPTION
1 ~ 38	AM 1 ~ AM 35, AA 1 ~ AA 3		Anode outputs
39 ~ 43	AA 4/G16 ~ AA 8/G 12		Anode or grid outputs
44 ~ 54	G 1 ~ G 11		Grid outputs
55	VFL		Driver supply voltage
56	TEST		Test input
57	VSS		Ground
58	OSCI		Oscillator extermal resistor and capacitor connections
59	OSCI		
60	VDD		5V logic supply
61	$\overline{RES}$		Active-LOW reset input
62	CE		Chip enable input
63	CL		Serial data clock input
64	D1		Serial data input



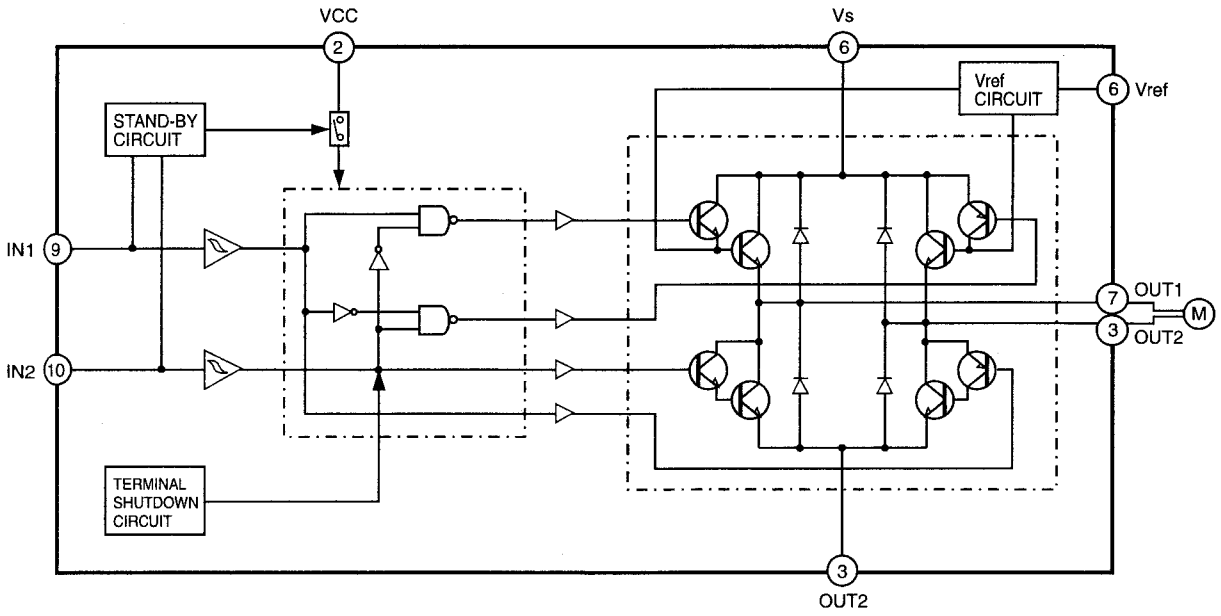
BH6511FS (MOTOR DRIVER)

PIN No.	Pin Name	Description	PIN No.	Pin Name	Description
1	GND	Predrive ground	17	VDD	Predrive power supply
2	VG	Gate voltage supply	18	IN1R	Channel 1 reverse input
3	IN4R	Channel 4 reverse input	19	IN1F	Channel 1 forward input
4	IN4F	Channel 4 forward input	20	VM1	Power supply
5	VM4	Power supply	21	OUT1F	Channel 1 forward output
6	OUT4F	Channel 4 forward output	22	PGND1	Power ground
7	PGND4	Power ground	23	OUT1R	Channel 1 reverse output
8	OUT4R	Channel 4 reverse output	24	VM12	Power supply
9	VM34	Power supply	25	OUT2F	Channel 2 reverse output
10	OUT3R	Channel 3 reverse output	26	PGND2	Power ground
11	PGND3	Power ground	27	OUT2F	Channel 2 forward output
12	OUT3F	Channel 3 forward output	28	VM2	Power supply
13	VM34	Power supply	29	IN2F	Channel 2 forward input
14	IN3F	Channel 3 forward input	30	IN2R	Channel 2 reverse input
15	IN3R	Channel 3 reverse input	31	CAPA+	Change pump capacitor connection (positive)
16	PSB	Power cut	32	CAPA-	Change pump capacitor connection (negative)



BVITA8409S (BRIDGE DRIVER)

PIN No.	SYMBOL	DESCRIPTION
1	IN2	Input terminal
2	Vcc	Supply voltage terminal for logic
3	OUT2	Output terminal
4	NC	Non connection
5	GND	GND
6	VS	Supply voltage terminal for motor driver
7	OUT1	Output terminal
8	Vref	Reference voltage terminal for control circuit
9	IN1	Input terminal



CIRCUIT DESCRIPTION

NOTE : Please set the Remote control selector to single position on the Rear panel.

1.Test mode of the unit

1-1. Setting of the test mode

While pressing the (STOP) key, plug the AC power cord into the AC wall outlet.

1-2. Contents of the test mode

❶ [DOT TEST]
❷ [SEG TEST]
*❸ [KEY TEST]
*❹ [CYBER TEST] J type only
* Used for production line only

1-3. Function of the test mode

❶ [DOT TEST]

The FL display starts the "NIAGARA MODE" by pressing the (SET) key in the (DOT TEST) mode.

❷ [SEG TEST]

Turn the FL indication ON by pressing the (YES) key in the (SEG TEST) mode.

The FL indication changes cyclically as shown in the below by turning the JOG DIAL (|◀◀ / ▶▶|).

FL LIGHT ON → FL LIGHT OFF → ENGLISH

1-4. Function of the key

❶ JOG up (▶▶|) and JOG down (|◀◀) keys
: Selects the test mode.

DOT TEST → SEG TEST → KEY TEST → CYBER TEST

❷ YES key
: Proceeds the test mode or return to test mode.
❸ Stop key
: Cancel the test mode.

1-5. Microprocessor reset

The microprocessor can be initialized while pressing the (EJECT) key, plug the AC power cord into the AC wall outlet.

2. Mechanism test mode

2-1. Setting the test mode

Connect a plug of AC power cord to an outlet of AC, while pressing PLAY key.

2-2. Canceling the test mode

Unplug the AC power cord or press the STANDBY key.

2-3. Basic operation in test mode

All operations are performed using the JOG DAIL (up/down), YES key, STOP key, and SET key. The functions of each key are shown in the table below.

Function	Description
JOG DAIL (up/down)	Changes the parameter and mode.
YES key	Proceeds for definition.
STOP key	Returns for interrupt.
SET key	Skip the mode and go to next step.

2-4. Selection of test mode

12 test modes are selected by turning the JOG DIAL.

No.	Display	Description	Section
1	TEMP ADJUST	The work of adjustment is unnecessary in this mode	-
2	LDPWR ADJUST	Laser power adjustment	3-5
3	LDPWR CHECK	Laser power check	3-5
4	EFBAL ADJUST	Traverse adjustment	3-6
5	FBIAS ADJUST	Focus bias adjustment	3-7
6	CPLAY MODE	Continuous playback mode	2-4-1
7	CREC MODE	Continuous recording mode	2-4-2
8	STT-LIMIT SW	Check the mechanism start limit SW position	-
9	JUMP MODE	Track jump checking mode	-
10	SRV DAT READ	Servo data reading	-
11	EEP MODE	E2PPROM data reading or rewrite	-
12	EEP INITIAL	E2PPROM data initializing	-

For more information on each adjustment mode, refer to each section of 3, "Electrical adjustment".
If other adjustment mode has been entered incorrectly, press the STOP key to exit the mode.

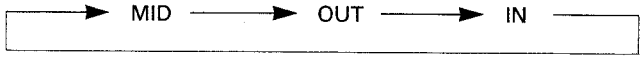
- The number 8~12 are not used for service. If these mode have been entered incrrectly, press the STOP key immediately to exit the mode. Specially, do not use EEP INITIAL (E2PROM data initialized if used it.)

2-4-1. Operation in continuous playback mode

1. Entering the continuous playback mode
(1) Insert a recordable disc or pre-mastered disc into the unit.
(2) Turn the JOG DIAL to display "CPLAY MODE".
(3) Press the YES key. The display then changes from "CPLAY MODE" to "CPLAY MID".
(4) After the access operation is completed, the display changes from "CPLAY MID" to"C=#### a=##".

Note : Numerals on the display appera the error rate and ADIP error.

2. Change the playback point.
(1) Press the YES key during continuous playback. T h e display then changes as follows.



(2) After the access operation is completed, the display changes from "C=#### a=##".
Note : Numerals on the display appear the error rate and ADIP error.

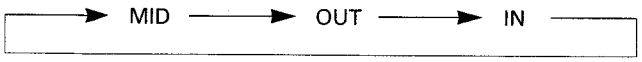
3. Terminating the continuous playback mode
(1) Press the STOP key. The display then changes to "CPLAY MODE".
(2) Press the EJECT key to take out the disc.
Note : The playback start addresses of IN, MD, and OUT are described below.

IN 30H cluster
MID 300H cluster
OUT 700H cluster

2-4-2. Operation in countinous recording mode

1. Entering the continuous recording mode
(1) Insert a recordable disc into the unit.
(2) Turn the JOG DIAL to display "CREC MODE".
(3) Press the YES key. The display changes from "CREC MODE" to "CREC MID".
(4) Press the YES key again. The display changes from "CREC MID" to "CREC (####)", and the continuous recording is started.
Note : Numerals on the display (####) appear the address of recording point.

2. Change the recording point.
(1) Turn the JOG DIAL to clockwise while "CREC MID" is displayed. The display changes as follows. (The recording point can be shifted.)



(2) Press the YES key. The display then changes to "CREC (####)", and the continuous recording is started.
Note : Numerals on the display (####) appear the address of recording point.

3. Terminating the continuous recording mode
(1) Press the STOP key. The display then changes to "CREC MODE" and the REC display goes off.
(2) Press the EJECT key to take out the disc.
Notes :
1. The recording start addresses of IN, MID, and OUT are described below.

IN 30H cluster
MID 300H cluster
OUT 700H cluster

2. The STOP key can be pressed at any time to stop the recording.
3. An erasure prevention control is not detected in the test mode. Be careful not to enter the continuous recording mode using a disc containing the data that should not be erased.
4. Do not record continuously for more than five minutes.
5. Take care that no vibration is applied during continuous recording.

2-5. Other key functions

Function	Description
▶	Plays back continuously when this key is pressed during stop. Turn on and off the tracking servo when it is pressed during continuous playback.
■	Stops the continupus playback and recording.
◀◀	The thread moves to the inner circumference while this key is pressed.
INPUT SELECTOR	Selects the mode for the pit and groove every time this key is pressed.
REC MODE	Selects the spindle servo mode. (CLV-S and CLV-A)
TITLE INPUT	Selects the contents of the display every time this key is pressed.

Note : An erasure prevention control is not detected in the test mode. Notice that recording is performed irrespective of the erasure prevention control position when the REC key is pressed.

2-6. Display in test mode

The display is selected in the order of MODE display, address display and error rate display every time the TITLE INPUT key is pressed.
1. MODE display
"TEMP ADJUST" and "CPLAY MODE" are displayed as the MODE display.

2. Error rate display
The error rate display appears as described below.
C = #### a = ##
C = C1 error, a = ADIP error

3. Address display
The address display appears as described below.
h = #### , d = #### (Recordable groove and pre-mastered disc.)
h = Header address, d = ADIP address
"When no address can be read." - "display appears.

4. Segment indication
[play] mark : servo on
[pause] mark : tracking servo on
[rec] mark : servo on (laser light power)
[SINGLE] : servo groove mode
[TOTAL] : servo mode (CLV-A)
[PROGRAM] : spindle lock
[COPY] : recordable disc

2-7. Precaution on use of test mode

* An erasure prevention control is not detected in the test mode. Therefore, when the recording laser power mode such as continuous recording mode and traverse adjustment mode is entered, the contents of the existing recording are erased irrespective of the control position. Be careful not to enter the continuous recording mode and traverse adjustment mode when using a disc, containing the data that should not be erased, in the test mode.

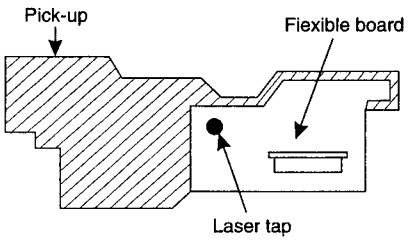
3. Electrical adjustment

3-1. Precaution during confirmation of Laser Diode emission

During adjustment, do not view the emission of a laser diode from just above for confirmation. This may damage your eyes.

3-2. Precaution on handling of Optical pick-up (KMS-260A)

The laser diode in an optical pick-up is easy to be subject to electrostatic destruction. Therefore, solder-bridge the laser tap on the flexible board when handling the optical pick-up.
When removing the flexible board from the connector, make a solder bridge in advance, then remove the board. Be careful not to remove the solder bridge before inserting the connector. Moreover, take careful measures against electrostatic destruction. The flexible board is cut easily. Handle the flexible board with care.



3-3. Precaution during adjustment

(1) Perform the adjustment and confirmation marked with "O" in the order shown in the table when the parts below are replaced.
(2) In the test mode, perform the adjustment. After adjustment is completed, cancel the test mode.

	Optical pick-up	BD board		
		ICS	D101	IC1, IC2, IC10
1. Temparature compensation offset adjustment	X	O	O	O
2. Laser power adjustment	O	O	X	O
3. Traverse adjustment	O	O	X	O
4. Focus bias adjustment	O	O	X	O
5. Error rate confirmation	O	O	X	O

(3) Perform the adjustment in the order described.
(4) Use the following tools and measurement equipment.

- CD test disc TGYS-1
- Laser power meter
- Oscilloscope (with bandwidth of more than 40 MΩ) (Calibrate the probe before measurement.)
- Digital voltmeter
- Thermometer

(5) Take care that VC and GND (ground) are not connected on the oscilloscope when two or more signals are monitored on the oscilloscope. (VC and GND are short-circuited in this case.)

Note : The "#" display, on the screen indicates an arbitrary figure.

3-4. Creating the recordable continuous recording disc

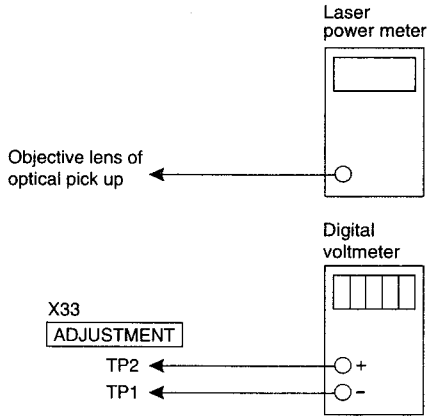
This disc is used for focus bias adjustment and error rate confirmation. How to create the recordable continuous recording disc is described below.

1. Insert a commercial recordable disc (blank disc).
2. Turn the JOG DIAL to display "CREC MODE".
3. Press the ENTER key to display "CEREC MID".
4. Turn the JOG DIAL (CW) to display "CREC-OUT/IN".
5. After pressed the ENTER key, a display indicates "CREC (0300)" and the recording begins.
6. Terminate the recording within five minutes.
7. Press the STOP key to stop the recording.
8. Press the EJECT key to take out the recordable disc.

As a result, a continuously recorded disc can be created for focus bias adjustment and error rate confirmation.
Note : Take care that no vibration is applied during continuous recording.

3-5. Laser power adjustment

Connection :



Adjustment :

1. Put the laser power meter on the objective lens of the optical pick-up. Connect the digital voltmeter to TP1 and TP2 on the P33 board.
2. Turn the JOG DIAL to display "LDPWR ADJUST". (Laser power : For adjustment use)
3. Press the ENTER key to display "(0.9mW)$##".
4. Adjust to turn JOG DIAL so that the laser power meter reads 0.86 - 0.94mW.
   Set range 10mW of the laser power meter, then save to press ENTER key.
5. "(7.0mW)$##" is displayed.
6. Adjust to turn the JOG DIAL so that laser power meter reads 6.9-7. 1mW, then save to press ENTER key.
   ("LDPWR<$##" is displayed monentarily.)

* Don't output the laser power of 7.0mW more than 15sec.
7. Next turn the JOG DIAL to display "LDPWR CHECK".
8. Press YES key to display "(0.9mW)$##". Check the laser power meter reads 0.85 - 0.95mW.
9. Next set range 10mW of the laser power meter, then press YES key to display "(7.0mW)$##". Confirm that the laser power meter and digital voltmeter that the time read the specified value.

Specification:

Reading of laser power meter : 7.0 ± 0.1mW

Reading of digital voltmeter : Optical pick-up indication value ± 10%

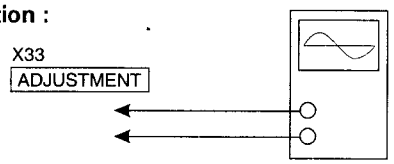
In this case, Iop = 82.5 mA
Iop(mA) = Reading of digital voltmeter (mV)/1(Ω)

10. Press the YES key to display "LDPWR CHECK" and stop the laser emission.

Note : The "#" display on the screen indicates an arbitrary figure.

3-6. Traverse Adjustment

Connection :



V: 0.5V/div H: 10ms/div
INPUT: DC mode

Adjustment :

1. Connect the oscilloscope to (TE2) and (VC) on the P33 board.
2. Insert a commercial recordable disc.
3. Turn the JOG DIAL to display "EFBAL ADJUST".
4. Press the YES key to display "EFBAL MO-W" and after that press the YES key again to display "EF=$##MOW".
5. Turn the JOG DIAL so that the waveform on the oscilloscope satisfies the specified value. (When the JOG DIAL is turned, the #-marked figure in "EF=$##" changes and the waveform also changes). During this adjustment, the oscilloscope changes in units of about 3%. Adjust so that the waveform comes nearest to the specified value. (MO groove read power traverse adjustment.)

(Travers waveform)

Specification : A = B

6. Press the YES key to display "EFB=##XSAVE" momentarily. After that, "EF=$##MOR" is displayed. (Laser power READ power, focus servo ON, tracking servo OFF, and spindle(S) servo ON.)
7. Turn the JOG DIAL so that the waveform on the oscilloscope satisfies the specified value.(When the JOG DIAL is turned, the #-marked figure in "EF-##" changes and the waveform also changes). During this adjustment, the oscilliscope changes in units of about 2%. Adjust so that the waveform comes nearest to the specified value. (MO groove read power traverse adjustment).

(Travers waveform)

Specification : A = B

8. Press the YES key to display "EFB=##XSAVE" momentarily and save the adjustment result in nonvolatile memory. After that, "EFBAL MO-P" is displayed.
9. Press YES key to display "EF=$##MOP". (A pick-up moves automatically to pit block area.)
10. Turn the JOG DIAL so that the waveform on the oscilloscope comes near to the specified value. During this adjustment, the waveform changes in units of about 2%. Adjust so that the waveform comes nearest to the specified value.

(Travers waveform)

Specification : A = B

11. Press the YES key to display "EFB=##XSAVE" momentarily and save the adjustment result in nonvolatile memory. After that, "EFBAL CHANGE" is displayed. The disc rotation stops automatically.

Note : The "#" display on the screen indicates an arbitrary figure.

12. Press the EJECT key to take out a recordable disc.
13. Insert test disc TGYS-1.
14. Press the YES key to display "EF=$##CD". A servo is established automatically.
15. Turn the JOG DIAL so that the waveform on the oscilloscope comes near to the specified value. During this adjustment, the waveform changes in units of about 2%. Adjust so that the waveform comes nearest to the specified value.

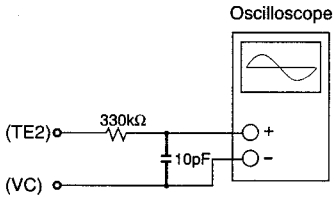
(Travers waveform)

Specification : A = B

16. Press the YES key to display "EFB=##XSAVE" momentarily and save the adjustment result in nonvolatile memory. After that, "EFBAL ADJUST" is displayed.
17. Press the EJECT key to take out test disc TGYS-1.

Notes:

1. Data is erased during MO write when a recorded disc is used for this adjustment.
2. If the traverse waveform is difficult to be monitored, connect an oscilloscope as shown in the figure below.



3-7. Focus bias Adjustment

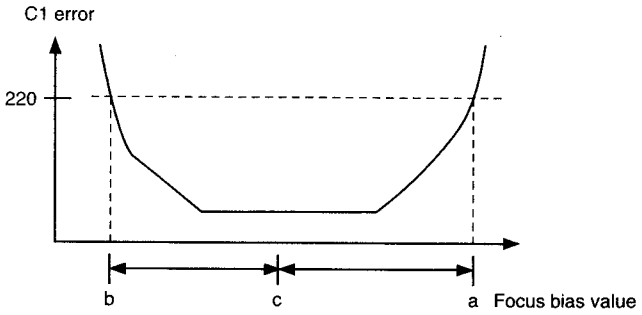
Connection :

1. Insert a continuously recorded disc (refer to 3-4, "Creating the recordable continuous recording disc").
2. Turn the JOG DIAL to display "CPLAY MODE".
3. After that "C=#### a=##" is displayed.
4. Press the STOP key to display "CPLAY MODE".
5. Turn the JOG DIAL to display "FBIAS ADJUST".
6. Press the YES key to display "a=## ####/##". The middle four-digit figure indicates the C1 error rate, the two-digit figure after "/## indicates ADIP error". and the two-digit figure after "a=" indicates the focus bias value.
7. Turn the JOG DIAL clockwise and detect the focus bias value in which the C1 error rate becomes 220.
8. Press the YES key to display "b=## ####/##".
9. Turn the JOG DIAL counterclockwise and detect the focus bias value in which the C1 error rate becomes 220.
10. Press the YES key to display "C=## ####/##".
11. Confirm that the C1 error rate at that time is less than 50, then press the YES key.
12. The display appears "##-##-##(##)" momentarily and save the adjustment result in nonvolatile memory. After that "FBIAS ADJUST" is displayed.
13. Press the EJECT key to take out a continuous recording disc.

Notes :

1. The relation between the C1 error and focus bias value is shown in the figure below. Points "a" and "b" in the figure are detected by the above adjustment. Focal position "c" is automatically obtained from points "a" and "b" by calculation.

2. The C1 error rate fluctuates. Therefore, perform adjustment according to the observed mean value.



3-8. Error rate confirmation

3-8-1 CD error rate confirmation

Confirmation :

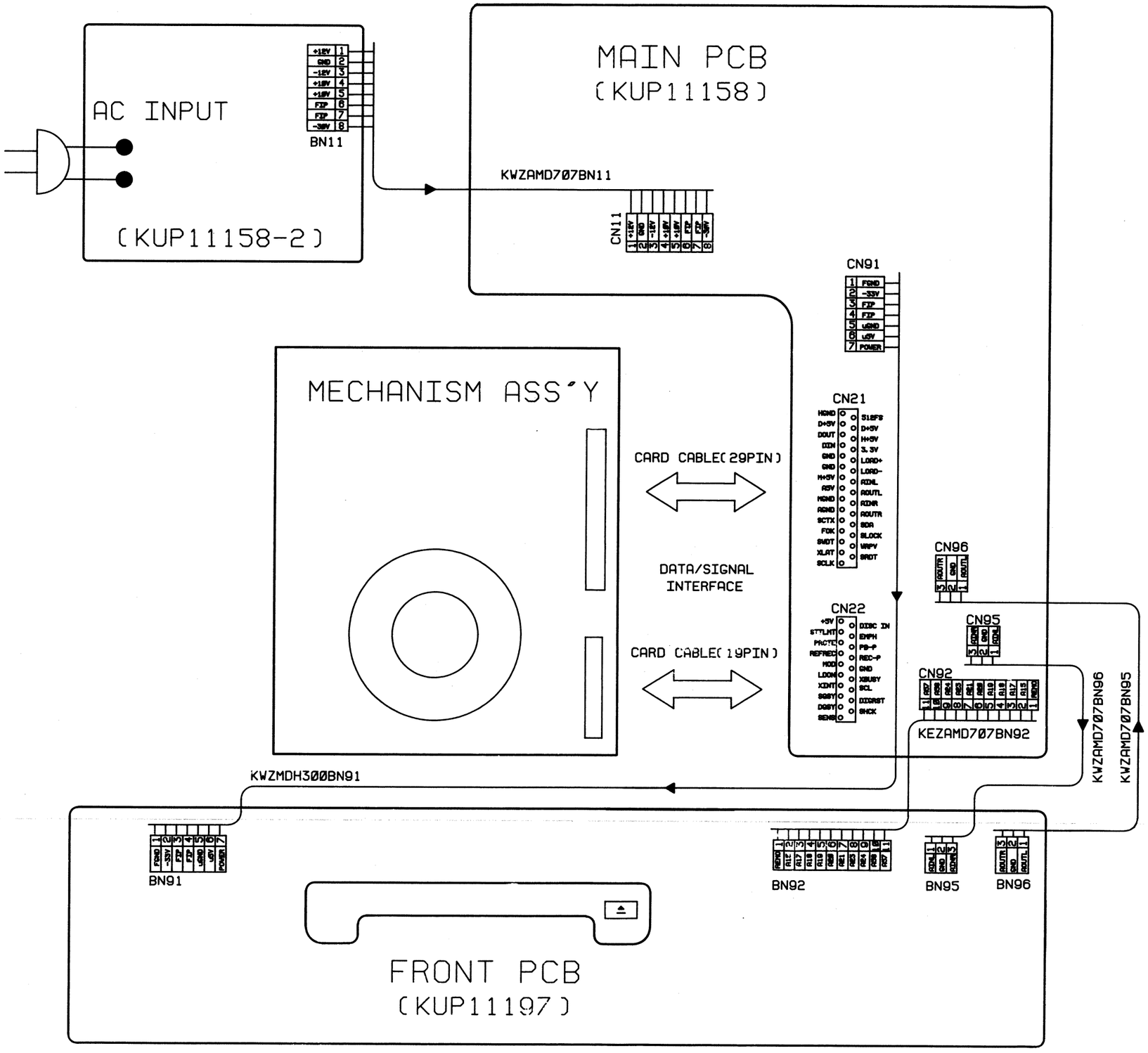
1. Insert test disc TGYS-1.
2. Turn the JOG DIAL to display "CPLAY MODE".
3. Press the YES key to display "CPLAY MID".
4. "C=#### a=##" is displayed.".
5. Confirm that the C1 error rate is less than 20.
6. Press the STOP key to stop the playback, than press the EJECT key to take out a test disc.

3-8-2 MO error rate confirmation

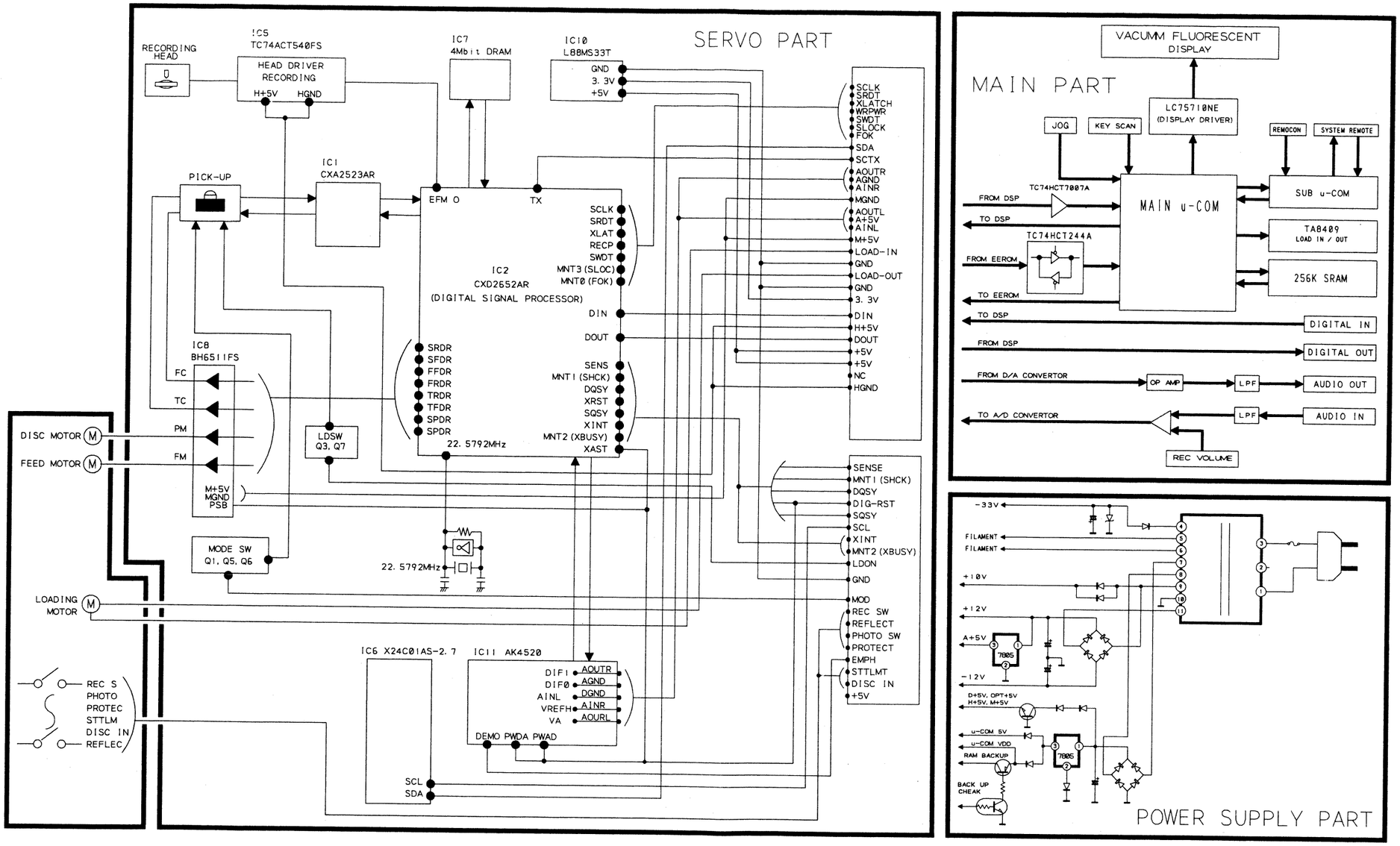
1. Insert a continuously recorded disc (refer to 3-4, "Creating the recordable continuous recording disc").
2. Turn the JOG DIAL to display "CPLAY MODE".
3. Press the YES key to display "CPLAY MID".
4. "C=#### a=##" is displayed.".
5. Confirm that the C1 error rate is less than 50 and that ADIP error rate is 00.
6. Press the STOP key to stop the playback, than press the EJECT key to take out a test disc.

Note : The "#" display on the screen indicates an arbitrary figure.

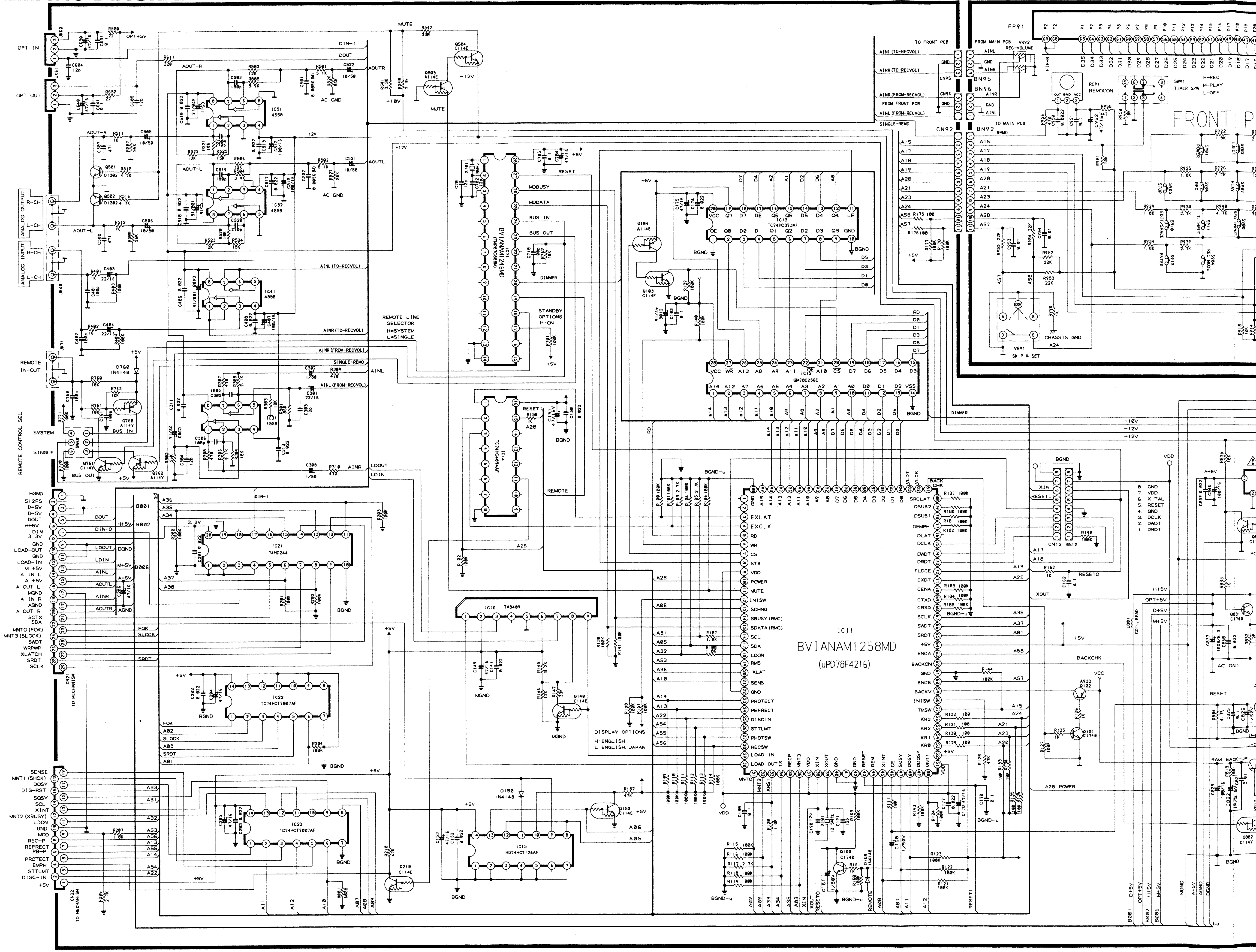
WIRING DIAGRAM



BLOCK DIAGRAM



SCHEMATIC DIAGRAM



OPT IN
OPT OUT
ANALOG OUTPUT
ANALOG INPUT
R-CH
L-CH
REMOTE IN-OUT
REMOTE CONTROL SEL
SYSTEM
SINGLE
BUS IN
BUS OUT
AOUT-R
AOUT-L
IC51 4558
IC52 4558
IC41 4558
IC31 4558
MUTE
AC GND
AINL (TO-RECVOL)
AINR (TO-RECVOL)
AINR (FROM-RECVOL)
SINGLE-REMO
AINL (FROM-RECVOL)
REMOTE LINE SELECTOR
H=SYSTEM
L=SINGLE
IC71 BVIANAMI246MD
STANDBY OPTIONS H:ON
IC14 TC74HC4094AF
IC13 TC74HC373AF
IC12 GM78C256C
IC21 74HC244
IC22 TC74HCT7007AF
IC23 TC74HCT7007AF
IC16 TA8409
IC15 HD74HCT126AF
DISPLAY OPTIONS
H: ENGLISH
L: ENGLISH, JAPAN
ICJ1
BVIANAMI258MD
(uPD78F4216)
CN21 TO MECHANISM
CN22 TO MECHANISM
TO FRONT PCB
FROM FRONT PCB
FROM MAIN PCB
TO MAIN PCB
CN92
BN92
CN95
BN95
CN96
BN96
FP91
VR92 REC-VOLUME
RC91 REMOCON
SW91 TIMER S/W
H-REC
M-PLAY
L-OFF
FRONT P
VR91 SKIP & SET
CHASSIS GND
CN12
BN12
8 GND
7. VDD
6. X-TAL
5. RESET
4. GND
3. DCLK
2. DWDT
1 DRDT
+10V
-12V
+12V
BACKCHK
A28 POWER
RAM BACK-UP

FRONT PART

IC91
LC75710NE

FP91

SW1
TIMER S/W
H-REC
M-PLAY
L-OFF

RC91
REMOCON

VR92
REC-VOLUME

VR91
SKIP & SET

CHASSIS GND
A24

POWERON/STANDBY

BN91

CN91
POWER

FIPGND
-33V
FIP (ACS. 9V)
FIP (ACS. 9V)

TO FRONT PCB
AINL (TO-RECVOL)
AINR (TO-RECVOL)
AINR (FROM-RECVOL)
FROM FRONT PCB
AINL (FROM-RECVOL)
SINGLE-REMO

FROM MAIN PCB
TO MAIN PCB
REMO

CN92
BN92
BN95
BN96

IC11
BV1ANAM1258MD
(uPD78F4216)

IC13
TC74HC573AF

IC12
GM78C256C

Q104 A1145
Q103 C1145
Q148 C114E
Q150 C114E
Q160 C1740

DISPLAY OPTIONS
H ENGLISH
L ENGLISH, JAPAN

BACK CHK

CN12
BN12

RESETO

+10V
-12V
+12V

VDD

Q842 B912
Q834 C114E
Q835 C114E
IC86 7805
Q850 A916
Q852 A1266
Q853 A1145VS

Q830 D2394
Q831 C1748
Q851 TL341CLP

A+5V
H+5V
OPT+5V
D+5V
M+5V
AC GND
AGND
DGND
BGND
MGND

RESET
Q803 RE5VL42CA
U-COM 5V
U-COM VDD
RAM BACK-UP
Q804 A933
Q802 C114Y
IC85 7805
D851 1N4148

POWER PART
AC GND
UGND
DGND
BGND
MGND
CHASSIS GND for EMC

TRANS PART
(KUP11158-2)

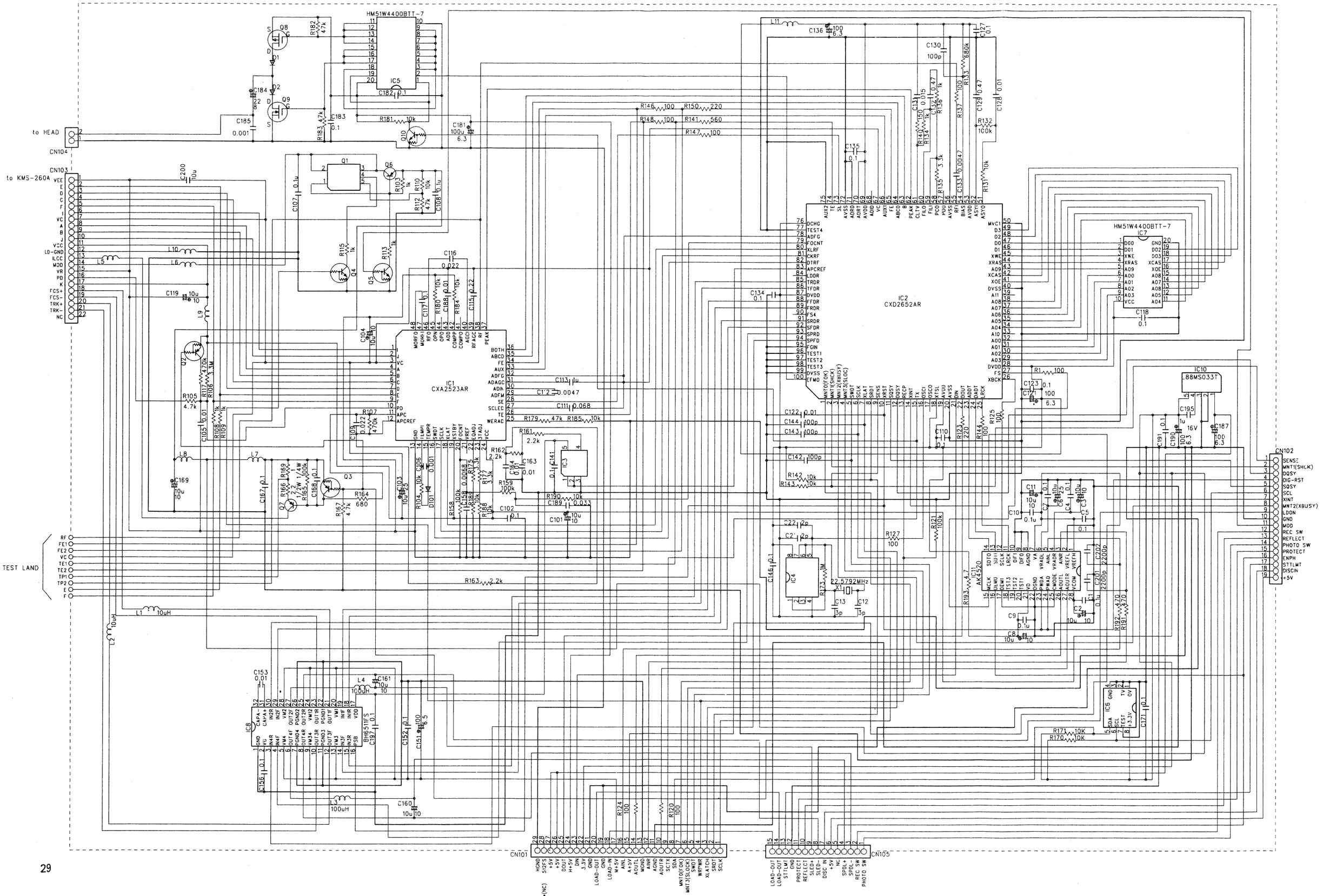
T101

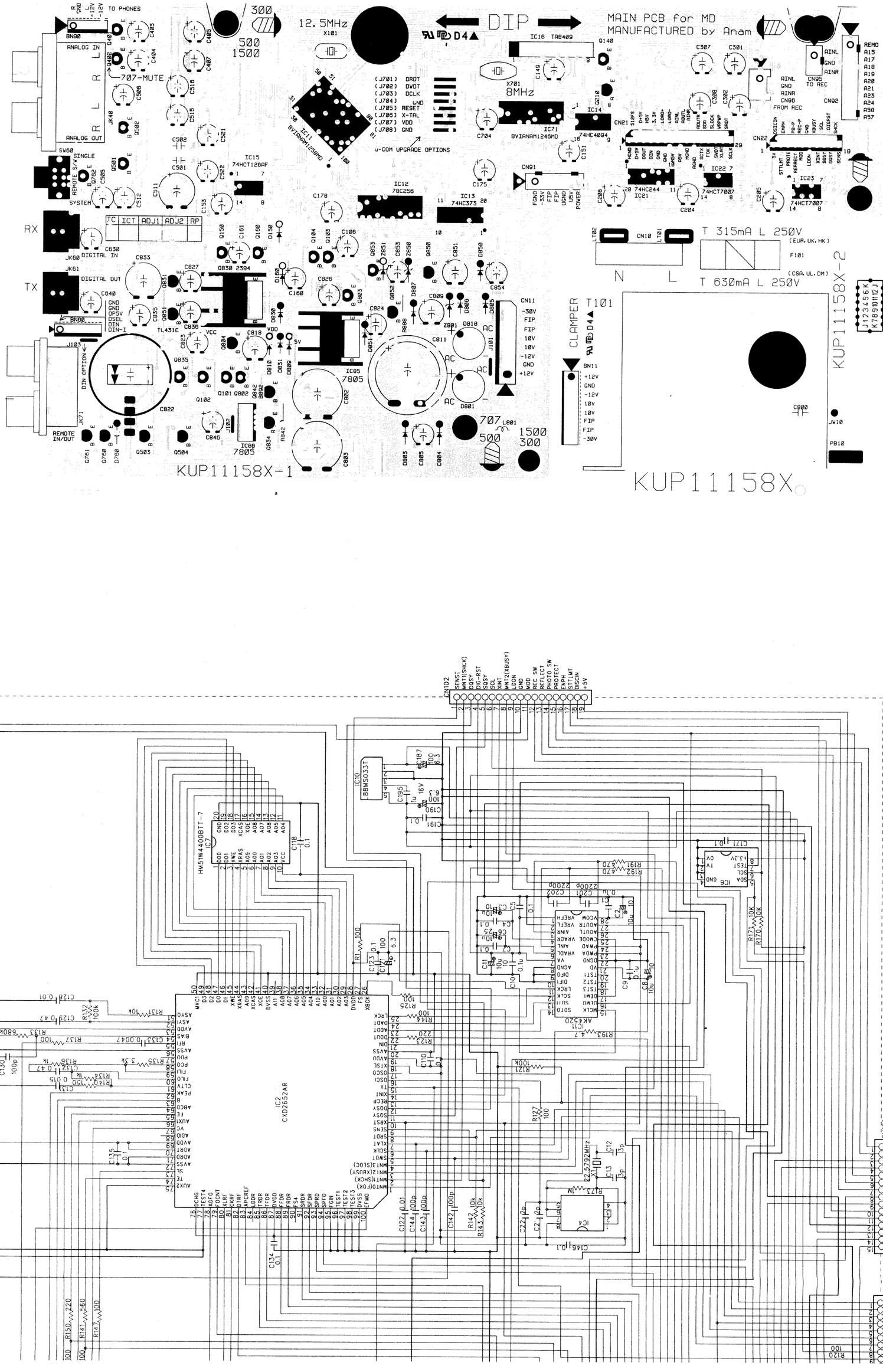
AREA	T101
EUR, UK	KLTSM015ZE
UL, CSA	KLTSM015ZU
JAPAN	KLTSM015ZJ

AC	F101
220 / 230V	T 315mA L 250V
100 / 120V	T 630mA L 250V

F101
CN10
AC
L
N

** IMPOTANT SAFETY NOTICE.
COMPONENT IDENTIFIED BY ⚠ MARK HAVE SPECIAL CHARACTERISTICS.
IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS
USE ONLY MANUFACTURER'S SPECIFIED PARTS.
** THE UNIT OF RESISTANCE IS OHM.
K = 1000 OHM, M = 1000 KOHM.
** THE UNIT OF CAPACITANCE IS MICROFARAD (uF).
F = 10^{-6}uF
** THIS SCHEMATIC DIAGRAM MAY MODIFIED AT ANY TIME
WITH THE IMPROVEMENT OF PERFORMANCE.


HM51W4400BTT-7
IC5
IC1
CXA2523AR
IC2
CXD2652AR
HM51W4400BTT-7
IC7
IC10
.88MS033T
IC4
IC11
AK4520
IC6
BH6511FS
CN103
to KMS-260A
CN104
to HEAD
CN101
CN105
CN102
TEST LAND
Q1
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
L1 10uH
L2 10uH
L3 100uH
L4 100uH
L5
L6
L7
L8
L9
L10
L11
22.5792MHz
SENSE
WNT1(SHCK)
DQSY
DIG-RST
SQSY
SCL
XINT
WNT2(XBUSY)
LDON
GND
MOD
REC SW
REFLECT
PHOTO SW
PROTECT
ENPH
STTLMT
DISCIN
+5V


MAIN PCB for MD
MANUFACTURED by Anam
KUP11158X-1
KUP11158X-2
KUP11158X
DIP
12.5MHz
X101
8MHz
X701
ANALOG IN
ANALOG OUT
707-MUTE
TO PHONES
SINGLE
SYSTEM
DIGITAL IN
DIGITAL OUT
REMOTE IN/OUT
DIN OPTION
CLAMPER
T 315mA L 250V
(EUR, UK, HK)
T 630mA L 250V
(CSA, UL, DM)
TO REC
FROM REC
u-COM UPGRADE OPTIONS
IC16 TA8409
IC71 8VIANAM1246MD
IC14 74HC4094
IC15 74HC126AF
IC12 78C256
IC13 74HC373
IC21 74HC244
IC22 74HCT7007
IC23 74HCT7007
IC85 7805
IC86 7805
IC11 8VIANAM1258MD
IC2 CXD2652AR
IC7 HM51W4400BTT-7
IC10 88MS0331
IC1 AK4520
IC4
IC6
CN102
CN105
CN95
CN96
CN92
CN91
CN11
CN21
CN22
CN10
JK60
JK61
JK40
JK71
SW60
Q140
Q210
Q701
Q702
Q761
Q760
Q700
Q503
Q504
Q102
Q101
Q802
Q842
Q834
Q855
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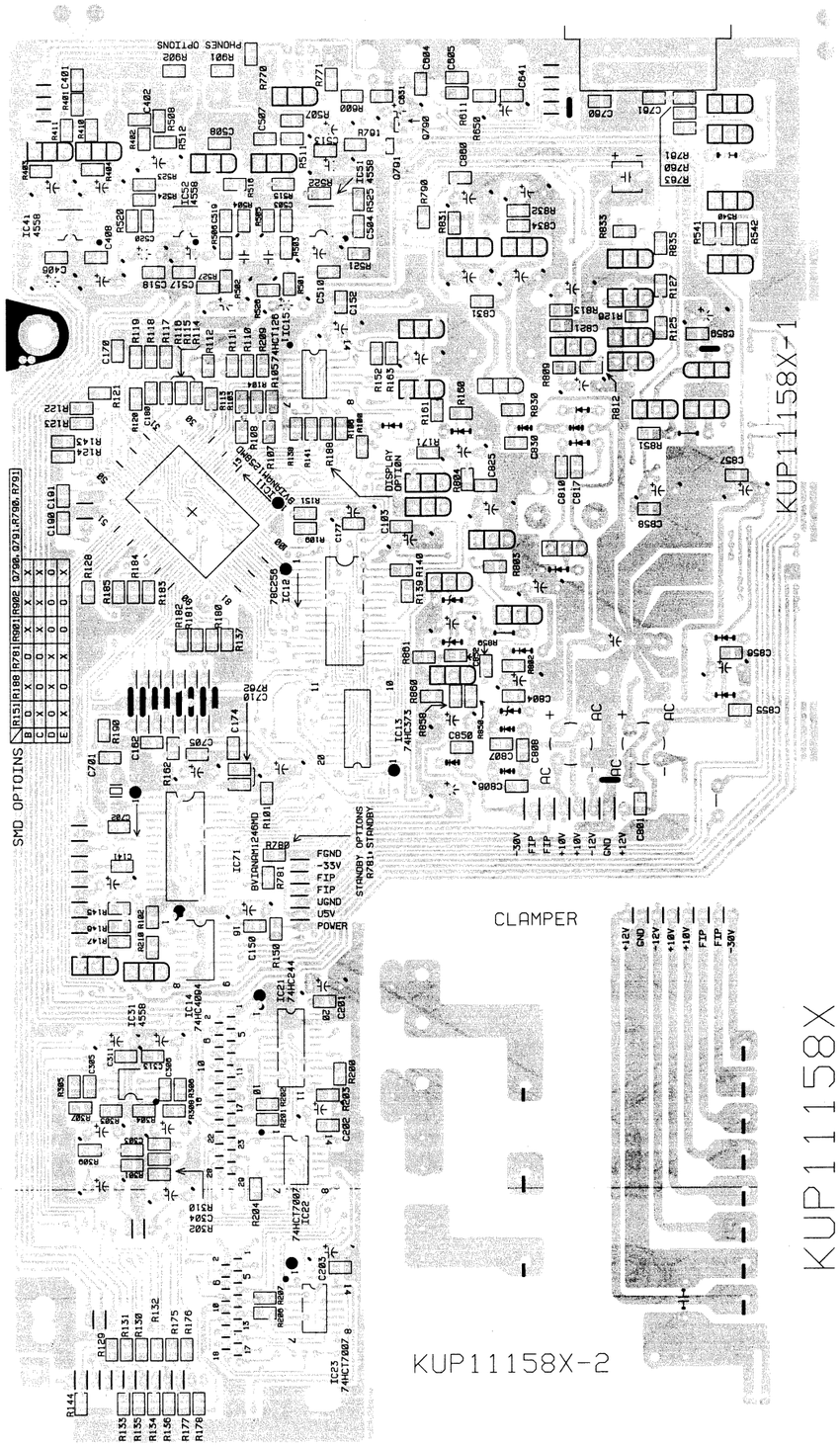
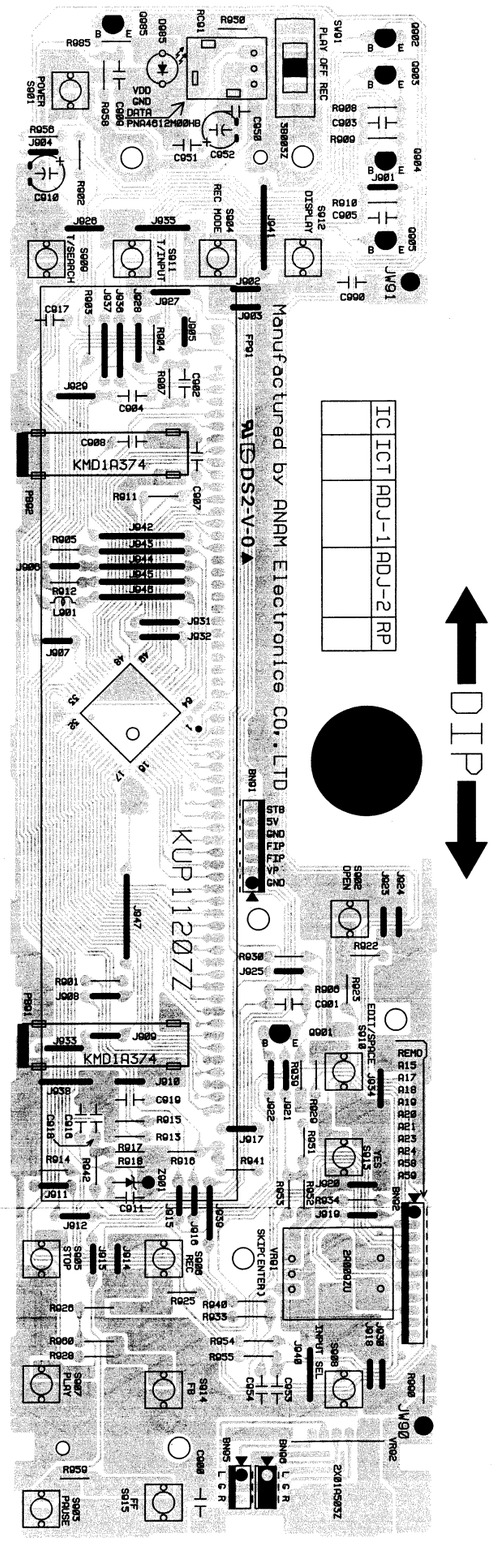
Q167
Q168
Q169

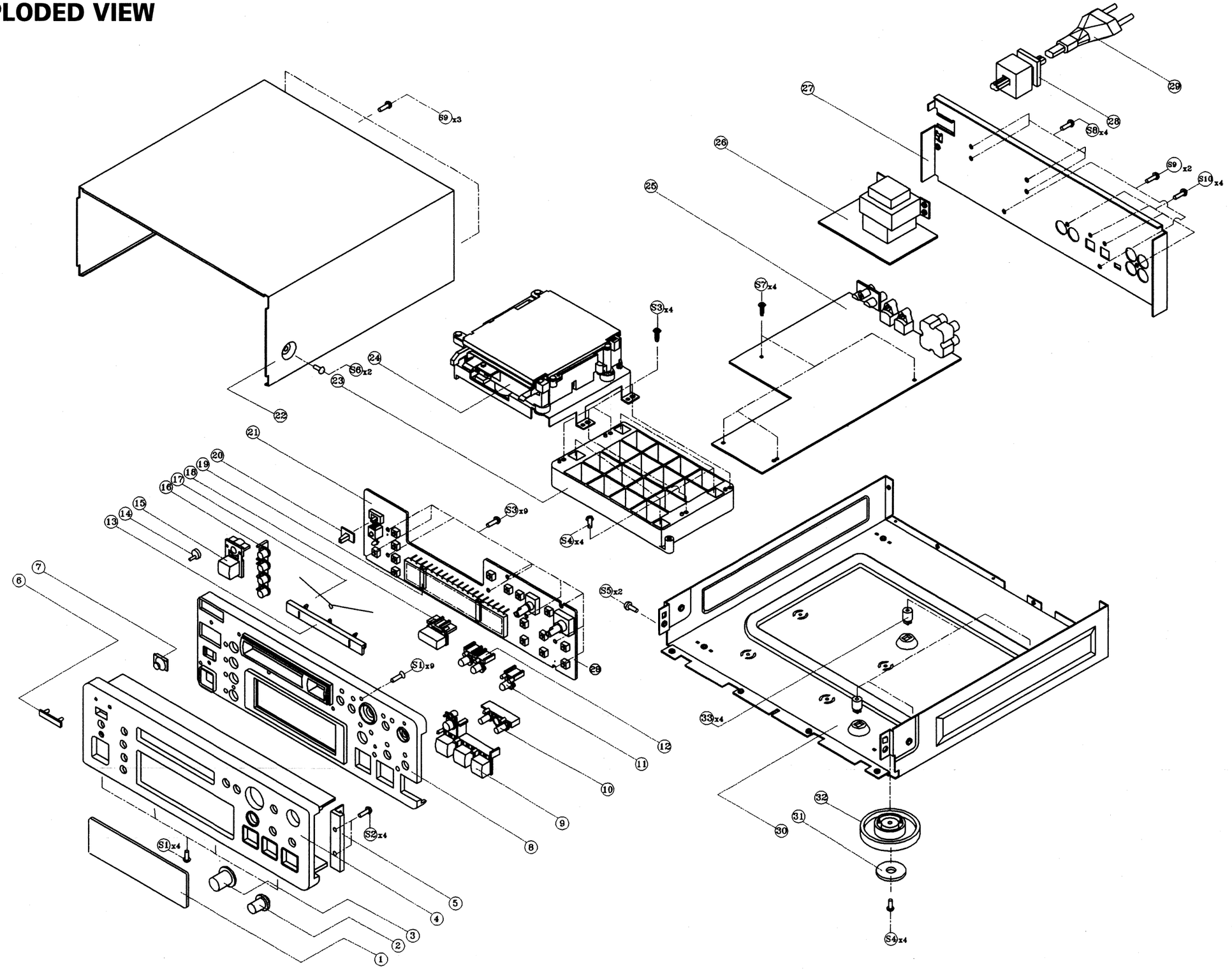
PRINTED CIRCUIT BOARDS



	R151	R180	R79	R901	R902	D706	Q791,R798,R791
B	O	X	O	X	X	X	X
C	X	O	O	X	X	X	X
D	O	X	X	O	O	O	O
E	X	O	O	X	O	O	X



EXPLODED VIEW

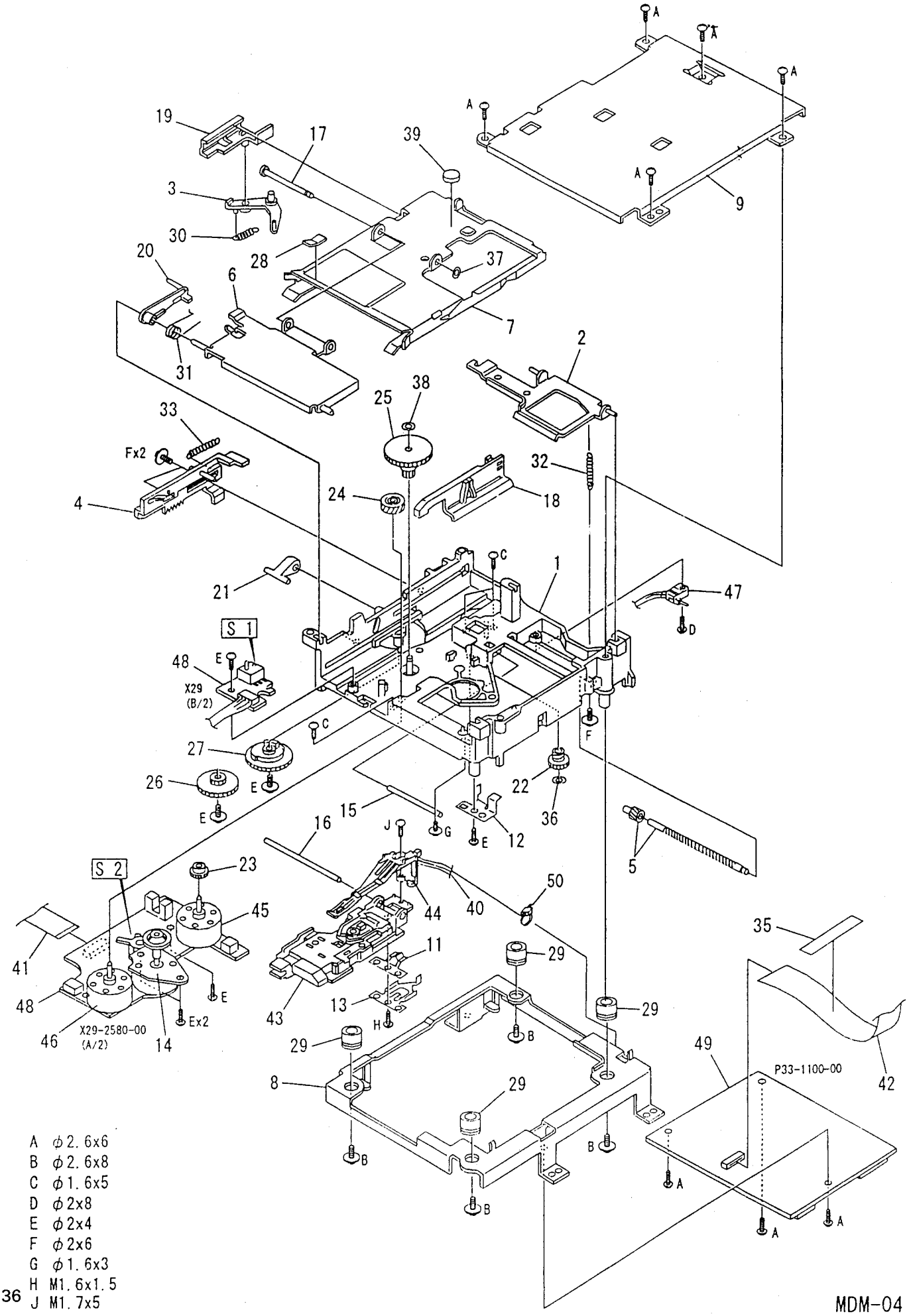


EXPLODED VIEW

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
1	9A07301500	WINDOW , FIP	KGU1A202Z
2	9A07302000	LEVEL CAP ASS'Y	KGX1A263ZA
3	9A07289000	TRACK KNOB ASS'Y	KGX2A218YA
4	9A07302300	PANEL , FRONT(AL)	KKM1A079ZC11
5	9A06251600	BAR , SIDE	KKM1A051C11
6	9A06224200	BADGE,TEAC	BGB1A047
7	9A07301600	CAP , SENSOR	KGU1A203
8	9A07301800	PANEL , SUB(MOLD)	KGW1A244ZK64
9	9A06316000	KNOB , TACT	KBT1A386WK64
10	9A06239700	KNOB , TACT	KBT1A410C13
11	9A07301000	KNOB , DISPLAY	KBT1A600ZK64
12	9A07301000	KNOB , DISPLAY	KBT1A600ZK64
13	9A07301400	ORNAMENT , DOOR	KGR1A153ZK64
14	9A07301300	INDICATOR,POWER	KGL2A120
15	9A07301200	KNOB , POWER	KBT2A387ZK64
16	9A07301000	KNOB , DISPLAY	KBT1A600ZK64
17	9A07303300	SPRING , DOOR	KUS1A104
18	9A07301100	KNOB , OPEN	KBT1A601ZK64
19	9A07290000	BRACKET, FLT	KMD1A374
20	9A06314100	KNOB , SLIDE	KBD1A039ZK64
21	9A07302500	FRONT PCB ASS'Y	KOP11207B
22	9A06251100	CABINET , TOP	KKC1B076S21
23	9A07290200	FRAME , MECHA	KMH1A085
24	9A07278100	MD MECHA ASS'Y	BJDMDM-04A
25	9A07302410	MAIN PCB ASS'Y [E]	KOP11158E
	9A07302400	MAIN PCB ASS'Y [J]	KOP11158H
26		SUB PCB ASS'Y	
27	9A07302200	PANEL , REAR	KKF1A173ZK59
28 ⚠	9A06754900	BUSHING,AC CORD	KHR1A028
29 ⚠	9A05328100	CORD,POWER	KJA2B019Z
30	9A07302900	CHASSIS , BOTTOM	KUA1A169
31	9A06229300	CUSHION , FOOT	KHG1A039Z
32	9A06315500	FOOT	KKL1A047ZK63
33	9A06229100	MOUNT , PCB A4-92-1728	KHE1A023
S1	9A01397400	SCREW KTS3+8J	KTS3+8J
S2	9A06229000	SCREW , SPECIAL	KHD1A016
S3	9A01377400	SCREW,KTB3+10G	KTB3+10G
S4	9A05339200	SCREW KTW3+8J	KTW3+8J
S5	9A01535800	SCREW,KTB3+8J	KTB3+8J
S6	9A05984300	SCREW KTB4+6FFZ	KTB4+6FFZ
S7	9A06255100	SCREW KTW3+16G	KTW3+16G
S8	9A01377200	SCREW KTB3+8JFZ	KTB3+8JFZ
S9	9A06871300	SCREW,KTB3+8FFZ	KTB3+8FFZ
⚠	9A06239400	FUSE 2C0630TLE [J]	KBA2C0315TLE
⚠	9A06868100	FUSE 2C0315TLE [E]	KBA2C0315TLE

INCLUDED ACCESSORIES

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
	9A07124700	OWNER'S MANUAL E/F/G/I/S MD-H500I [E]	KQX1A481Z
	9A07125700	OWNER'S MANUAL E/F/G/I/S MD-H500I [J]	KQX1A501Z
	9A07286610	REMOCON XMTR ASSY	KARTMDH300EUR
	9A07286600	REMOCON XMTR ASSY	KARTMDH300DM
	9A05935900	CORD,PIN	KJS4M014Y
	9A05936000	CORD,PIN	KJS4N001Y


A φ2.6x6
B φ2.6x8
C φ1.6x5
D φ2x8
E φ2x4
F φ2x6
G φ1.6x3
H M1.6x1.5
J M1.7x5
X29-2580-00 (A/2)
X29 (B/2)
P33-1100-00
S1
S2
Fx2
Ex2

MDM-04

EXPLODEDVIEW

REF.NO.	PARTS NO.	DESCRIPTION	REMARKS
1	9A07277600	CHASSIS ASSY	A10-3329U
2	9A07282800	LEVER ASSY	D10-3690U
3	9A07283100	ARM ASSY	D10-3698U
4	9A07283200	SLIDER ASSY(HD)	D10-3759U
5	9A07283300	GEAR ASSY(T)	D13-1784U
6	9A07286200	CLAMPER ASSY	J11-0824U
7	9A07286300	HOLDER ASSY	J19-5766U
8	9A07277700	SUB CHASSIS(FRAME)	A11-1113U
9	9A07277800	SUB CHASSIS(TOP)	A11-1116U
10		*VACANT*	
11	9A07284000	RACK(GEAR)	D13-1792U
12	9A07285600	FLAT SPRING(THRUST)	G02-1616U
13	9A07285700	FLAT SPRING(SUB)	G02-1618U
14	9A07299600	MOTOR ASSY	T42-0871
15	9A07282400	SHAFT(SUB)	D10-3685
16	9A07283000	SHAFT(MAIN)	D10-3694
17	9A07284100	SHAFT(JOINT)	D21-1859
18	9A07282500	SLIDER(MAIN)	D10-3686U
19	9A07282600	SLIDER(LD)	D10-3687U
20	9A07282700	ARM(CLAMP)	D10-3689U
21	9A07282900	ARM(CHANGE)	D10-3692U
22	9A07283400	GEAR(WORM)	D13-1786U
23	9A07283500	GEAR(MOTOR-T)	D13-1787U
24	9A07283600	GEAR(MOTOR-L)	D13-1788U
25	9A07283700	GEAR(INTER MEDIATE LA)	D13-1789U
26	9A07283800	GEAR(INTER MEDIATE LB)	D13-1790U
27	9A07283900	GEAR(MAIN)	D13-1791U
28	9A07285900	CUSHION	G13-0560
29	9A07286100	INSULATOR	J02-1178M
30	9A07285100	EXTENSION SP	G01-3964
31	9A07285200	TORSION COIL SPRING	G01-3965
32	9A07285300	EXTENSION SP	G01-3966
33	9A07285400	EXTENSION SPRING(S/HD)	G01-3967
34		*VACANT*	
35	9A07285800	NON-WOVEN-FABRIC	G10-0146
36	9A07300400	POLY WS 1.2*3.0*0.5 CUT	8341112032
37	9A07300500	POLY WS 1.6*3.5*0.5 CUT	8341116029
38	9A07300600	POLY WS 2.1*4.0*0.5 CUT	8341121034
39	9A07281400	SHEET(TRAY-B)	C3D-8015
40	9A07284200	WIRING HARNESS	E35-1715
41	9A07284300	FLAT CABLE	E35-1780
42	9A07286400	FPC	J80-0012U
43	9A07299300	PICK UP UNIT KSM-260A	T25-0060
44	9A07299400	RECORD HEAD	T30-0013
45	9A07299700	DC MOTOR R14-1351	T42-0880U
46	9A07299500	DC MOTOR	T42-0081
47	9A07298900	PUSH SWITCH SPPB12	S33-1022
48	9A07299900	PCB ASSY	X29-2580-00
49	9A07296500	PCB ASSY	P33-0010U
50	9A07300700	SK BINDER SKB-90	96063021

PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
	9A07296500	PCB ASSY	P33-0010U
D1.2	9A07285000	DIODE F1J6TP	F1J6TP
D101	9A07296200	DIODE MA111	MA111
IC1	9A07281200	ANALOG-IC	CXA2523AR
IC10	9A07296100	ANALOG-IC L88MS33T	L88MS33T
IC11	9A07277500	ANALOG-IC AK4520	AK4520
IC2	9A07281300	MOS-IC CXD2652AR	CXD2652AR
IC3	9A07299000	MOS-IC TC7S08FU	TC7S08FU
IC4	9A07299100	MOS-IC TC7WU04FU	TC7WU04FU
IC5	9A07299200	MOS-IC TC74ACT540FS	TC74ACT540FS
IC6	9A07299800	MEMORY-IC X24C01AS-2.7	X24C01AS-2.7
IC7	9A07286000	MEMORY-IC	HM51W4400BTT-7
IC8	9A07278000	ANALOG-IC BH6511FS	BH6511FS
L1.2	9A07295900	COIL 10UH	L33-0545-05
L3.4	9A07295800	COIL 100UH	L33-0369-05
L5.6	9A07296000	LINE FILTER	L79-1216-05
Q1	9A07284900	TRANSISTOR FMW1	FMW1
Q10	9A07282200	TRANSISTOR 10K/10K	DTC114EUA
Q2.3	9A07282100	TRANSISTOR 47K/47K	DTA144EUA
Q4.5	9A07282300	TRANSISTOR 10K/47K	DTC114YUA
Q6	9A07300000	TRANSISTOR 2SA1576A(R,S)	2SA1576A(R,S)
Q7	9A07300100	TRANSISTOR 2SB798-DL	2SB798-DL
Q8	9A07300200	FET 2SJ278	2SJ278
Q9	9A07300300	FET 2SK1764	2SK1764
WH1	9A07389100	WIRE ASS'Y	E35-1712-08
X1	9A07298800	X'TAL RESONATOR	SMD49 22.5792MHZ

PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
	9A07299900	PCB ASSY	X29-2580-00
	9A07388700	PCB	J70-1095-02
CN1	9A07389300	PIN ASS'Y 2P	E40-3260-05
CN2	9A07389200	PIN ASS'Y 3P	E40-3261-05
CN3	9A07284600	FLAT CABLE CONNECTOR 15P,	E40-8076-05
PH1	9A07388800	PHOTO INTERUPTER RP1-574	T95-0140-05
S1	9A07389000	PUSH SW	S68-0074-05
S2	9A07388900	LEVER SW	S64-0028-05

■ RESISTORS AND CAPACITORS

Notes : • Part numbers are indicated for most mechanical parts.
Please use this part number for parts order.
• IMPORTANT SAFETY NOTICE.
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacture's specified parts.
• The unit of resistance is OHM(Ω)
K=1000(Ω), M=1000(KΩ)
• The unit of capacitance is MICROFARED(μF)
P=10 $^{-6}$μF

■ Numbering System of Resistor

Example

KRD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value

Resistor Type	Wattage	Tolerance
KRD: Carbon	20:1/5W	F:= ±1%
KRG: Metal Oxide	25:1/4W	J:= ±5%
	50:1/2W	K:= ±10%
	1:1W	
KRF:Metal Cement	2:2W	
	3:3W	

■ Numbering System of Capacitor

Example

KCKR	1H	101	K	B
Type	Voltage	Value	Tolerance	Peculiarity

Capacitor Type	Voltage		Tolerance
	ECEA Type	Other	
KCB:Ceramic	0J:6.3V	1H:50V DC	C: ±0.25pF
KCC:Ceramic	1A:10V	1:125V DC	G: ±2%
KCK:Ceramic	1C:16V	KC:400V AC	J: ±5%
KCQI:Polyester	1E:25V		K: ±10%
KCQP:Polypropylene	1H:50V		Z: +80%, −20%
KCQS:Polystyrol	1V:35V		

MAIN PCB ASS'Y

REF. NO.		PARTS NO.	DESCRIPTION	REMARKS
		9A07302400	MAIN PCB ASS'Y [J]	
		9A07302410	MAIN PCB ASS'Y [EUR]	KOP11158E
		9A07361700	PCB,MAIN(MD)	KUP11158X
C106.149	⚠	9A07287400	CAP , ELECT KCEA1CH470T	KCEA1CH470T
C204-206	⚠	9A07287400	CAP , ELECT KCEA1CH470T	KCEA1CH470T
C505.506	⚠	9A06868900	CAP,ELECT A1HH100T	KCEA1HH100T
C511	⚠	9A06765000	CE, 470UF H 16V DC	KCEA1CH471T
C802.803	⚠	9A06868600	CAP , ELECT	KCEA1EAHS102E
C811	⚠	9A07287500	CAP , ELECT	KCEA1CH682E
C822	⚠	9A07286500	BATTERY, RECHAGABLE	KABSEC5R5M105Z
C833	⚠	9A06763200	CE, 1000UF H 6.3V DC	KCEA0JH102T
D150.160		9A01390500	DIODE,1N4148MT	KVD1N4148MT
D760		9A01390500	DIODE,1N4148MT	KVD1N4148MT
D801.818	⚠	9A05987000	DIODE,BRIDGE W02GF	BVDW02GF
D803.804		9A01390500	DIODE,1N4148MT	KVD1N4148MT
D805.806		9A05194600	DIODE,1N4003SRT	KVD1N4003SRT
D807.809		9A01390500	DIODE,1N4148MT	KVD1N4148MT
D810		9A01390500	DIODE,1N4148MT	KVD1N4148MT
D830.831	⚠	9A05194600	DIODE,1N4003SRT	KVD1N4003SRT
D850	⚠	9A05194600	DIODE,1N4003SRT	KVD1N4003SRT
D851	⚠	9A01390500	DIODE,1N4148MT	KVD1N4148MT
F101		9A05328200	HOLDER,FUSE KJCFC5S	KJCFC5S
IC11		9A07362000	IC,MAIN-MICOM	BVIANAM1258MD
IC12		9A07294400	IC,256K SRAM	KVIGM76C256ALFW
IC13		9A07278900	I.C TC74HC373AF(EL)	BVITC74HC373AF
IC14		9A07279000	I.C TC74HC4094AF EL	BVITC74HC4094AF
IC15		9A07278800	I.C TC74HC126AF(EL)	BVITC74HC126AF
IC16		9A07278600	I.C TA8409S	BVITA8409S
IC21		9A07279100	I.C TC74VHC244F(EL)	BVITC74VHC244F
IC22.23		9A07278700	I.C TC74HCT7007AFEL	BVITC74HCT7007F
IC31.41		9A06871800	I.C KA4558D	KVIKA4558D
IC51.52		9A06871800	I.C KA4558D	KVIKA4558D
IC71		9A07279300	I.C SUB U-COM TMP87P808M	BVITMP87P808M
IC85	⚠	9A05341500	IC, KA7805-ABTU	KVIMC7805C
IC86	⚠	9A05341500	IC, KA7805-ABTU	KVIMC7805C
JK40		9A07289400	JACK,BOARD(EARTH PLATE,GO	KJJ4P019Y
JK60		9A07043300	MODULE , OPTICAL	BJSTORX178A
JK61		9A06239100	MODULE , OPTICAL	BJS9L001Z
JK71		9A06230200	JACK , REMOTE(2P)	KJJ4N023Z
L801		9A05968600	COIL,BEAD	KLZ9I001Z
Q101		9A05939500	TR,2SC1740SR	KVT2SC1740SRT
Q102		9A05911600	TR,2SA933SR	KVT2SA933SRT
Q103		9A07294600	TR,DTC114EST	KVTDTC114EST
Q104		9A07294500	TR,DTA114EST	KVTDTA114EST
Q140.150		9A07294600	TR,DTC114EST	KVTDTC114EST
Q160		9A05939500	TR,2SC1740SR	KVT2SC1740SRT
Q210		9A07294600	TR,DTC114EST	KVTDTC114EST
Q501.502		9A05197500	TR,KTD1302T	KVTKTD1302T
Q503		9A07294500	TR,DTA114EST	KVTDTA114EST
Q504		9A07294600	TR,DTC114EST	KVTDTC114EST
Q760		9A05196400	TR,DTA114YST	KVTDTA114YST
Q761		9A05196500	TR,DTC114YST	KVTDTC114YST
Q762		9A05196400	TR,DTA114YST	KVTDTA114YST
Q802		9A05196500	TR,DTC114YST	KVTDTC114YST
Q803	⚠	9A07278500	IC , RESET	BVIRE5VL42CARF
Q804		9A05911600	TR,2SA933SR	KVT2SA933SRT
Q830	⚠	9A07294700	TR,2SD2394T	KVT2SD2394T
Q831		9A05939500	TR,2SC1740SR	KVT2SC1740SRT
Q834.835		9A07294600	TR,DTC114EST	KVTDTC114EST
Q842		9A05219100	TR,2SB892T	BVT2SB892T
Q850	⚠	9A05196700	TR,KSA916-Y-SHTA	KVTKSA916YT
Q851	⚠	9A07279200	I.C , SHUNT REGULATOR	BVITL431CLP
Q852		9A05895900	TR,KTA1266YT	KVTKTA1266YT
Q853	⚠	9A05196400	TR,DTA114YST	KVTDTA114YST
SW60		9A06675300	SWITCH SLIDE	KSS2B016Z
T101	⚠	9A07289900	TRANS,POWER [E]	KLT5M015ZE
T101	⚠	9A07386500	TRANS,POWER [J]	KLT5M015ZJ

MAIN PCB ASS'Y

REF. NO.		PARTS NO.	DESCRIPTION	REMARKS
X101		9A07290600	CRYSTAL 12500D120C	KOX12500D120C
X701		9A05193000	CRYSTAL, 08000E160C	KOX08000E160C
Z801	⚠	9A07294200	DIODE, ZENER	KVDMTZJ2.7BT
Z850	⚠	9A07294300	DIODE, ZENER [J]	KVDMTZJ20BT
Z850	⚠	9A07437800	DIODE,ZENER [E]	KVDMTZJ18BT
Z851	⚠	9A05193600	DIODE,ZENER MTZJ15BT[E]	KVDMTZJ15BT
Z851	⚠	9A06765200	DIODE,MTZJ13BT [J]	KVDMTZJ13BT

FRONT PCB ASS'Y

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
	9A07302500	FRONT PCB ASS'Y	KOP11207B
	9A07303000	PCB, FRONT	KUP11207Z
D985	9A05195000	LED,RED SLR342VCF02	KVD342VCF02T085
FP91	9A07277900	F.I.P (MD) BJ581GK	BFLBJ581GK
IC91	9A07278400	I.C LC75710NE	BVILC75710NE
L901	9A05356900	COIL , AXAIL 10UH,K	KLQ02C100KT
Q901-905	9A05939500	TR,2SC1740SR	KVT2SC1740SRT
Q985	9A05196400	TR,DTA114YST	KVTDTA114YST
RS91	9A06757900	IC,PNA4612M00HB	BRVPNA4612M00HB
S901-915	9A04882500	SW,TACT SKHV10910A	KST1A012ZT
SW91	9A03748000	SW,SLIDE SSSJ823GA011	KSS3B003Z
VR91	9A06873400	RES , VARIABLE	BVV2X01A503Z
VR92	9A07278200	ENCODER VOLUME(TACT)	BSR2A009ZU
Z901	9A05194200	DIODE,ZENER MTZJ7.5AT	KVDMTZJ7.5AT